CENTRALIZED ADMINISTRATION OF THE TESTING OF ENLISTED PERSONNEL: UNITED STATES NAVAL EXAMINING CENTER

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A Thesis
Presented in Partial Fulfillment of the Requirements
for the Degree Master of Science

By

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TABLE OF CONTENTS

CHAPTER		PAGE
I.	STATEMENT OF THE PROBLEM	1
	Purpose	1
	The Need for a Testing Program	3
II.	HISTORICAL BACKGROUND	8
	Rating Structure of Enlisted Personnel	8
	Advancement in Rating	9
	Qualifications for Advancement in Rating	13
	Number of Examinations Prepared by the Center	21
	Test Procedures in the Past	22
III.	STEPS TAKEN TO ESTABLISH THE CENTER	25
	Board Convened by the Bureau of Naval Personnel	25
	Administrative Group's Initial Recommendations	26
	Report of Visit to Educational Testing Service	27
	Report of Sub-Group on Organization	30
	Report of Sub-Group on Examinations	31
	Promotion Group's Report	33
	Establishment of the Center	35
	Relationship of the Center to the Bureau of Naval Personnel	36
IV.	DEVELOPMENT OF THE ORGANIZATION OF THE CENTER	40
	Initial Organization of the Center	43
	First Major Change in Organization	54

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Table of Contents

CHAPTER PAGE

Present Organization of the Center 59

V. PROCEDURES ESTABLISHED BY THE CENTER 64

Instructions for the Administration of Examinations 64

Testing Techniques and Test Construction 69

Shipping Examinations 72

Receipt of Examination Results and Scoring . . . 72

Analysis Techniques 75

VI. EVALUATION OF THE PERFORMANCE OF THE CENTER . . . 84

Impact on the Navy 84

Organizational Aspects 85

Analysis Techniques 88

Army and Marine Corps Testing Programs 91

Future of the Center 94

VII. RECOMMENDATIONS 97

BIBLIOGRAPHY 101

LIST OF TABLES AND CHARTS

PAGE

Rating Structure of Enlisted Personnel 9

Excerpts from Military Requirements for all Enlisted Personnel in the Navy 15

Excerpts from Professional Qualifications for Advancement in Rating 16

Requirements for Advancement in Rating 19

Organization Chart of Educational Testing Service, Princeton, N. J. 29

Recommended Organization of Naval Examining Center 32

Partial Organization of the Bureau of Naval Personnel Showing Relationship Between the Bureau and the Naval Examining Center 37

Initial Organization of Naval Examining Center . . 44

Organization of the Naval Examining Center September 1950 56

Present Organization of the Naval Examining Center, 1 March 1951 60

Sample Report of Examination for Advancement or Change in Rate or Rating - Form NavPers - 624 (Rev 1-50) 67

Statistical Analysis Data Chart for Aviation Electronics Technicians (AT) 78

CHAPTER I

STATEMENT OF THE PROBLEM

Purpose

The United States Naval Examining Center is an activity established by the Navy for the purpose of centralizing the administration of the testing of enlisted personnel for advancement in rating. It was established, remarkably enough, at a time when the Navy was concerned with a reduction of force. Such a procedure represents a new approach to the concept of centralized administration of a naval testing program. Moreover, the Examining Center was established by top level Naval authority as the result of a comprehensive study into the problem of the promotion of Naval personnel.

The establishment of the Center is within the context of centralization, generally. It poses characteristic problems of centralization that are related to the size and complexity of a large organization. It is important to emphasize that the written tests produced by the Center are only one part, although the major one, of the requirements for advancement. Other qualifications are reviewed by the Center prior to the preparation of relative lists of personnel for advancement. Upon receipt of quotas from the Bureau of Naval Personnel, the Center authorizes the advancement of

designated personnel from these lists. Thus we see that the centralization dealt with here is concerned with the major phase of the administration of testing of enlisted personnel for advancement. This step has come late in the Navy's history but is related to the trend of the times.

Prior to the establishment of the Examining Center the administration of testing enlisted personnel for advancement was decentralized to a considerable degree. The Bureau of Naval Personnel examined this program in the light of economy, fairness and technical competence. It appeared to be economical to consolidate control of testing into one activity. It was found that decentralized testing did not operate in the best interests of individuals concerned and that the best qualified personnel were not always promoted. Also it was readily apparent that competent technical personnel were not available in sufficient numbers to operate a decentralized testing program. Consequently, it was considered highly desirable to gather together into one activity personnel skilled in the highly specialized field of testing. During the study by the Bureau many advantages of centralized administration were foreseen which seemed to justify the establishment of a Naval Examining Center.

The purpose of the present study will be: (1) to identify the reasons behind the establishment of the Naval Examining Center and to inquire into specific problems that

were raised by the decision to centralize, (2) to describe its organization and operation, (3) to evaluate its performance as a whole in the light of its purpose, and (4) to propose future missions for the Center in the light of its impact on the Navy.

Answers to the following questions which arise in connection with the present study will be proposed: Why was the Center established? What type of organization does it have? What procedures are in effect and how do they compare with previous methods used in testing enlisted personnel for advancement? What future is in store for the Center? Should it continue in operation in the light of its performance to date? Should the Center continue in a probationary status in order to weigh the results of its impact on the Navy in the future? If the Center continues in operation what additional work can it perform to increase its value to the Navy?

The foregoing are all problems of real concern centered around a new and unique organization in the Navy enhanced by the fact that the Navy will probably continue to be large as well as specialized and must improve the quality of enlisted personnel in each skill level of the rating structure.

The Need for a Testing Program. There is little doubt but that testing has become an area of major importance. Its growing importance during the last generation is evidenced by its development and use by the Navy as well as by industry.

Testing becomes extremely important within large organizations where it is used extensively for screening, placement or promotion of personnel. In order that testing programs maintain optimum effectiveness and efficiency it is essential that administrative procedures be developed and kept up to date. Included within the category of screening and selection is testing for advancement in rating. The planning and developing of examinations must exclude irrelevant material, cover significant subject matter and vary in difficulty for the various skilled levels. Adherence to the principles of sound testing techniques is mandatory. Consequently, it seems logical that a sound specialized organization is required to administer a testing program.

The Naval establishment is a huge organization. With the exception of its military features it has much in common with any large industrial enterprise. There is a personnel structure from top to bottom with various specialities and levels of skill established. The officer ranks are divided into speciality fields within which officers gain knowledge and experience as they advance in the hierarchy. The enlisted ranks are divided into definite occupational fields with various levels of skill. Qualifications are specified for enlisted specialities and for the levels of skill within each rating. Training programs are established to provide competency at each level.

Of prime importance is the fact that there must exist a means of measuring the qualifications of all personnel within the Naval establishment. A system of fitness reports for officer personnel and evaluation of performance of various kinds of duty often takes precedent over examinations for promotion. Written professional examinations, when used for the promotion of officers, serve essentially as a valuable aid to each individual for review and study. For enlisted personnel to attain advancement to a higher skill level a means of measuring their qualifications as well as determining their relative standing is essential. Detailed requirements for advancement are prescribed by the Bureau of Naval Personnel in a Qualifications Manual.[1] These qualifications are modified or changed periodically by appropriate directives. It is significant to note that a written test for advancement is only one criterion by which an enlisted man meets the required qualifications and receives a relative standing. A few of the other elements or factors involved are length of service in present rate, sea duty, a practical demonstration of skill, and a definite recommendation by his commanding officer.

Examining enlisted personnel for advancement in rating

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[1] U. S. Department of the Navy. Bureau of Naval Personnel. Manual of Qualifications for Advancement in Rating. NavPers 18068. Washington: 1947 edition (Restricted).

has always existed in the Navy formally or informally; with some application of the principles of testing or with none at all. In some instances advancement in rating of enlisted personnel has proceeded along informal lines. An example of such informality is advancement as the result of the judgment of superiors over the performance of the individual. Prior to 1 July 1950 advancement was effected on the basis of area-wide competition. Designated commanders ashore and afloat were given authority by the Bureau of Naval Personnel to prepare, administer and grade examinations for advancement of enlisted personnel under their respective commands. At the other extreme has been the highly centralized administration of advancement to Chief Petty Officer, the highest level of skill within each rating. In this instance the Bureau of Naval Personnel prepared, distributed and graded the written examinations. It seems obvious that considerable inequities must have existed under these administrative procedures.

The centralized system of examination for advancement to the top enlisted pay grade has been extended to include the top four pay grades and is now administered by the United States Naval Examining Center at Norfolk, Virginia. The Naval Examining Center was established in May 1949 for the purpose of preparing, distributing and grading the written examinations required for advancement of enlisted personnel. It is a unique activity within the Naval establishment in that it represents a departure from a decentralized

administration of a testing program to one with a high degree of centralization and specialization. Perhaps this is a recognition by the Navy that testing really is big business. At any rate a new and unique activity was created during a period when harsh economy measures were being implemented. In 1948 and 1949 shore stations were being consolidated or eliminated, ships were being put in "moth balls," and the Naval personnel strength was being cut back. The recognition of the advantages of an effective, efficient testing program on a centralized basis was one factor involved in the decision to establish the Naval Examining Center.

CHAPTER II

HISTORICAL BACKGROUND

Rating Structure of Enlisted Personnel. It is essential at this point to acquaint the reader with the rating structure of enlisted personnel and with significant terminology peculiar to the Naval service. The following definitions of rate, pay grade, rating and advancement in rating will clarify the Navy's enlisted personnel structure.

Enlisted personnel are grouped into seven (7) pay grades. Each basic pay grade represents a definite level of skill and responsibility. A rate identifies a person by pay grade as indicated in the following table:

RATE	PAY GRADE
Chief Petty Officer	E-7
Petty Officer first class	E-6
Petty Officer second class	E-5
Petty Officer third class	E-4
Seaman, Fireman, Constructionman, Airman, Hospitalman, Dentalman, and Stewardsman ...	E-3
Seaman Apprentice, Construction Apprentice, Fireman Apprentice, Airman Apprentice, Hospitalman Apprentice, Dentalman Apprentice, and Stewardsman Apprentice	E-2
Seaman Recruit, Construction Recruit, Fireman Recruit, Dentalman Recruit, and Stewardsman Recruit	E-1

All enlisted personnel in the top four pay grades are further divided into specific occupations. There are 62 clearly defined occupations which are called ratings or more

specifically general service ratings. These are broad occupations which form the peacetime rating structure. Each rating requires special training, knowledge and skill for efficient performance of duty. The 62 ratings are grouped into 12 occupational fields which represent related occupations.

The rates represented in the lowest three pay grades are not considered as being with a rating. However, personnel in pay grade 3 may advance into a rating through designated avenues of advancement which lead to an occupation in one or more of the occupational groups.

RATE		ADVANCE TO RATINGS IN FOLLOWING GROUPS
SN	Seaman	I, II, III, IV, V, VI
FN	Fireman	VII
CN	Constructionman	VIII
AN	Airman	IX
HN	Hospitalman	X
DN	Dentalman	XI
TN	Stewardsman	XII

Personnel in pay grade 1 normally advance to pay grade 2 upon completion of recruit training.

Advancement in rating is an increase in pay grade. It represents a change to a higher level of skill within a rating.

To illustrate the foregoing a man enlists in the Navy and is assigned the rate of Aviation Recruit (AR). This is pay grade 1. Upon completion of recruit training he is advanced in rate to Aviation Apprentice (AA), pay grade 2.

When he meets the required qualifications he advances in rate to Airman (AN), pay grade 3. He has not yet entered into one of the ratings or defined occupations. However, when he becomes qualified to do so he advances in rate into one of the ratings (occupations) open to him such as Aviation Electronics Technician third class (AT3). Now he is in the 4th pay grade and is a petty officer third class. He is also considered to be in the lowest skill level of the rating of Aviation Electronics Technician (AT). His advancement to AT2, AT1 and ATC are called advancements in rating. The highest enlisted pay grade or skill level is Chief Petty Officer. Beyond enlisted pay grades men can advance to Warrant Officer and Limited Duty only grades in related broad technical specialities.

The rating structure shown below indicates the 62 general service ratings and abbreviations.[1] These ratings are grouped into the occupational fields indicated:

Group I. Deck

BM	Boatswain's Mate	RD	Radarman
QM	Quartermaster	SO	Sonarman

Group II. Ordnance

TM	Torpedoman's Mate	FC	Fire Controlman
MN	Mineman	FT	Fire Control Technician
GM	Gunner's Mate		

Note: FC and FT ratings will be combined into one FT rating within the next five years.

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[1] U. S. Department of the Navy. All Hands. The Bureau of Naval Personnel Information Bulletin. March 1948, Washington: 1948, pp. 50-57.

Group III. Electronics

ET Electronics Technician

Group IV. Precision Equipment

IM Instrumentman
OM Opticalman

Group V. Administrative and Clerical

TE Teleman
RM Radioman
CT Communications Technician
YN Yeoman
PN Personnel Man
MA Machine Accountant
SK Storekeeper
DK Disbursing Clerk
CS Commissaryman
SH Ship's Serviceman
JO Journalist

GROUP VI. Miscellaneous

PI Printer
LI Lithographer
DM Draftsman
MU Musician
PH Photographer's Mate

Note: PH rating will include AF rating within 2 years and be transferred to group IX.

Group VII. Engineering and Hull

MM Machinist's Mate
EN Engineman
MR Machinery Repairman
BT Boilerman
EM Electrician's Mate
IC I. C. Electrician
ME Metalsmith
PP Pipe Fitter
DC Damage Controlman
PM Patternmaker
ML Molder

Group VIII. Construction

SV Surveyor
CE Construction Electrician's Mate
CD Driver
CM Mechanic
BU Builder
SW Steelworker
UT Utilities Man

Group IX. Aviation

AD Aviation Machinist's Mate
AT Aviation Electronics Technician
AL Aviation Electronicsman
AO Aviation Ordnanceman
AC Air Controlman
AB Aviation Boatswain's Mate
AE Aviation Electrician's Mate
AM Aviation Structural Mechanic
PR Parachute Rigger
AG Aerographer's Mate
TD Tradesman
AK Aviation Storekeeper
AF Aviation Photographer's Mate

Note: AF rating will be combined into one PH rating within two years.

Group X. Medical

HM Hospital Corpsman

Group XI. Dental

DT Dental Technician

Group XII. Steward

SD Steward

A brief word about emergency service ratings is apropos at this time. To provide for rapid expansion of enlisted personnel in time of national emergency a system of emergency service ratings is used in conjunction with the basic rating structure. Personnel on active duty in peacetime will have one of the basic rates or ratings. Reserve personnel are given ratings which represent a narrower occupational area. These ratings are known as emergency service ratings.

By way of illustration, the rating of Metalsmith (ME) is a general service rating which covers broad occupational requirements. This rating has four sub-divisions which have narrower requirements for adaptation to Naval reserve personnel:

Metalsmith B (Blacksmith)
Metalsmith G (Shipboard Metalsmith)
Metalsmith S (Sheet Metal Workers)
Metalsmith W (Welders)

The Naval Examining Center as originally set up was expected to administer a testing program for both regular and reserve enlisted personnel. But initially only examinations

for regular Naval personnel were constructed. An interim measure[2] is in operation at this time which enables personnel in emergency service ratings to be examined for advancement. Reserve personnel eligible and recommended may utilize the appropriate general service rate examination. They are directed to answer the questions they know first then to go back and answer all other items if they can. The Examining Center screens the answer sheets to see that only items which are applicable to the emergency service rating will enter into the score. In the near future it is expected that items will be identified as applying to emergency service ratings.

Qualifications for Advancement in Rating. The qualifications for advancement in rate or rating are prescribed by the Bureau of Naval Personnel. The Qualifications Manual[3] describes the entire rating structure in terms of job requirements for each rate or rating and for each skill level. These requirements are the minimum standards set for advancement to or within a rating. They cover general military requirements as well as professional requirements. The military requirements relate to the knowledge and skill necessary

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[2]"Advancement in Rating of U.S. Naval Reserve Personnel Including Fleet Reserve, Recalled to Active Duty for General Assignment Since 8 July 1950." United States Navy Department Bulletin, Restricted, (15 September 1950), p. 44.

[3]Manual of Qualifications for Advancement in Rating (Restricted), op. cit., xv + XII. 9 pp.

for an individual to perform his naval duties as distinguished from his rating speciality. For example, general information concerning uniforms, Naval customs and traditions, general seamanship come under this heading. (See Table I). The military requirements are essentially the same for all ratings in each pay grade.

The professional requirements are "minimum technical or speciality requirements for proper performance of a particular rate or rating."[4] They cover each definite occupation and further specify applicable rates to which they apply. (See Table II).

Each of the foregoing qualifications is divided into practical factors and examination subjects as will be noted in Tables I and II. Practical Factors are

> ...those qualifications which are best determined by observation of the candidate in situations that require a demonstration of his knowledge, skill, and ability under actual or simulated working conditions.[5]

This is not competitive and no marks are assigned. It is an indication that the man can actually do the required work. Examination subjects are "...those qualifications which can be best demonstrated by means of a written examination."[6]

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[4] Ibid., p. iv.

[5] Manual of Qualifications for Advancement in Rating (Restricted), op. cit., p. iv.

[6] Ibid., p. iv.

TABLE I

EXCERPTS FROM MILITARY REQUIREMENTS FOR ALL ENLISTED PERSONNEL IN THE NAVY

	Pay Grades 2 and 3	Applicable Rates
.100 Practical Factors		
.101 Leadership		
Direct groups in simple calisthenics.		3,2,1,C
Organize and direct working parties.		2,1,C
Maintain discipline; exert authority fairly and intelligently.		2,1,C
.102 ...		
.103 Training		
Instruct personnel, using on-the-job training methods.		3,2,1,C
Prepare a list of knowledge and skills required by personnel in own rating.		C
.104 to .108 inclusive ...		
.109 Small arms		
Clean, disassemble and assemble service rifle (men only).	all	
Demonstrate ability to fire pistol and machine gun (men only).		3,2
.110 to .116 inclusive ...		
.200 Examination Subjects		
.201 General Information		
Uniform regulations and care of clothing	all	
.202 ...		
.203 Seamanship		
Rules of the Road (men only).	all	3,2,1,C
.204 to .206 inclusive ...		
.207 Mathematics		
Arithmetic, including addition, subtraction, multiplication, division, fractions, and decimals.	all	3,2,1,C
.208 to .211 inclusive ...		

TABLE II

EXCERPTS FROM PROFESSIONAL QUALIFICATIONS FOR ADVANCEMENT IN RATING

Aviation Electronics Technician

General Service Rating

AT Maintain, adjust, test, install, and repair all airborne electronic equipment installed in aircraft including radio, radar, Loran, IFF, RCM, radion altimeter, and electronic fire control equipment.

	Applicable Rates
.100 Practical Factors	
.101 Tools Use tools in hand tool kits as furnished.	3,2,1,C
.102 Test Equipment Use the instruments furnished as specialized test equipment to the activity to which attached.	1,C
.103 to .107 inclusive ...	
.108 Supervision Supervise the work and training of personnel in connection with the maintenance of aviation electronic equipment.	1,C
Organize and administer facilities for repair of aviation electronic equipment.	C
.200 Examination Subjects	
.201 Tools Names, types, nomenclature of parts, and uses of hand tools used in the adjustment and maintenance of aviation electronic equipment.	3,2,1,C
.202 and .203 ...	
.204 Electronics General knowledge of the theory and performance of aviation electronic equipment and accessories at the activity to which attached.	3,2,1,C
.205 to .211 inclusive ...	

The practical factor is administered by or under the direction of the individual's commanding officer. The written examinations are the responsibility of the Naval Examining Center.

The Qualifications Manual requires operational tests for 12 ratings. These operational tests involve performance in one or more of the following: typewriting, teletypewriting, stenography, radio code and visual signalling. The Center prepares and distributes operational tests for applicable ratings but these tests are scored by the local examining boards. Although scoring is on a pass or fail basis the test papers are submitted to the Center for review.

It is significant to note that the Qualifications Manual, except in a few instances, does not spell out the difference in skill level for a particular requirement. This is at present accounted for in the general statement that

> The degree of skills or knowledge for any one rate in comparison with other rates of a rating is a matter for determination by examining boards, taking into account 'normal' or 'average' requirements for a particular rating.[7]

The professional and military requirements, each with their practical factor and written examination plus the

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[7] Manual of Qualifications for Advancement in Rating. (Restricted), op. cit., p. v.

operational tests for designated ratings, are only part of the requirements for advancement in rate or rating for enlisted personnel. All factors involved are prescribed by the Bureau of Naval Personnel and include the following:[8]

1. Length of service.
2. Marks in proficiency in rate and conduct.
3. Completion of training course.
4. Completion of course of instruction at a service school.
5. Pass practical factors.
6. Recommendation by commanding officer.
7. Pass military requirements examination.
8. Pass professional examination.

The latest instructions concerning steps 1 and 2 are contained in Table III. Modifications to these instructions are promulgated to all Naval personnel by the Bureau of Naval Personnel. The exigencies of the service will indicate a relaxation or tightening of these basic requirements for advancement.

To be eligible for advancement all enlisted personnel are required to complete a training course for the next higher rate. These courses are issued by the Bureau to all commanding officers. They assist the man in studying for the higher rate. Commanding officers are responsible for administration of the training courses which includes progress, grading and recording results in the man's service record. This is step 3.

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[8] U. S. Department of the Navy. Bureau of Naval Personnel Manual (Restricted), Washington: 1948. NavPers 15791. Art. C-7201, p. 143.

TABLE III

REQUIREMENTS FOR ADVANCEMENT IN RATING

Pay Grade	Service Requirements in Next Lower Pay Grade
E-1 to E-2	No specified time for advancements effected upon completion of recruit training at training centers; otherwise 4 months Naval service.
2 to 3	6 months.
3 to 4	6 months.
4 to 5	12 months.
5 to 6	12 months and 36 months total active service; sea duty of at least 6 months in pay grade E-4 and/or E-5 (Except for women, CT, MA, DM, JO, and group IX aviation ratings).
6 to 7	12 months; sea duty of at least 6 months in pay grade E-6 (Except for women, CT, MA, DM, JO, and group IX aviation ratings).
	Marks for Proficiency in Rate
E-1 to E-2	No requirements as to marks.
2 to 3	No mark less than 2.5 for preceding 6 months and not less than 3.5 for quarter preceding advancement.
3 to 4	No mark less than 2.5 for preceding 6 months and not less than 3.5 for quarter preceding advancement.
4 to 5	No mark less than 3.0 for preceding 12 months and an average of not less than 3.5 for 12 months preceding advancement.
5 to 6	No mark less than 3.0 for preceding 12 months and an average of not less than 3.5 for 12 months preceding advancement.
6 to 7	No mark less than 3.0 for preceding 24 months and an average of not less than 3.5 for 36 months preceding advancement.
	Marks for Conduct
E-1 to E-2	No requirements as to marks.
2 to 3	No mark less than 2.5 for preceding 6 months and an average of not less than 3.25 for 6 months preceding advancement.

TABLE III (CONTINUED)

Pay Grade	Marks for Conduct (Continued)
3 to 4	No mark less than 3.0 for preceding 6 months and an average of not less than 3.5 for 6 months preceding advancement.
4 to 5	No mark less than 3.0 for preceding 12 months and an average of not less than 3.5 for 12 months preceding advancement.
5 to 6	No mark less than 3.0 for preceding 12 months and an average of not less than 3.5 for 12 months preceding advancement.
6 to 7	No mark less than 3.0 for preceding 24 months and an average of not less than 3.5 for 24 months preceding advancement.

Some few ratings require completion of a formal course of instruction at a Naval service school as a basic requirement prior to advancement in rate. For example, before a man can be advanced from AN to AT3 he must be ordered to a Naval School for Aviation Electronics Technician and must successfully pass the required curricular. Commanding officers may recommend waivers of this requirement in specific cases for consideration by the Bureau of Naval Personnel. The ratings below are included in this category.[9] This is step 4.

Rate	School (All Class A)
FT3	Fire Control Technician
MN3	Mineman
ET3	Electronics Technician

[9] "Service-wide Competitive Examinations for Advancement to Pay Grades E-4, E-5, and E-6," United States Navy Department Bulletin, Restricted, (31 January 1950), p. 26.

Rate	School (All Class A) (Continued)
OM3	Opticalmen
CT3	Communications Technician
DM3	Draftsmen
MU3	Musicians
SV3	Surveyors
AT3	Aviation Electronics Technician
AC3	Air Controlman
HM3	Basic Hospital Corps
DT3	Basic Dental Technician

Step 5 involves the passing of the practical factors for both the military and professional requirements as laid down in the Qualifications Manual. As indicated earlier this step is administered by the man's commanding officer on a pass or fail basis.

When a man has completed the foregoing 5 steps he must be recommended for advancement by his commanding officer in order to be eligible to take the written examinations. Step 6 involves an appraisal of the man by the commanding officer to the effect that the man is considered to be fully qualified for advancement. An entry to that effect is then made in the man's service record.

Number of Examinations Prepared by the Center. The administration of written examinations for advancement to pay grades 2 and 3 is not centralized. However, for pay grades 4, 5, 6, and 7 within each of the 62 ratings, written examinations must be prepared by the Naval Examining Center. The Chief Petty Officer examinations are prepared annually and

for the other top pay grades semi-annually. Thus for the 62 ratings a total of 441 different examinations are constructed, distributed, scored and reported on annually:

Pay Grade	Rate	Annual Professional Examinations	Annual Military Examinations	Total written Examinations Annually
E-7	CPO	62	1	63
E-6	IPO	124	2	126
E-5	2PO	124	2	126
E-4	3PO	124	2	126
				441

In addition to the above, operational tests are prepared by the Center for four skill levels with each of twelve ratings.

Test Procedures in the Past. Prior to the establishment of the Naval Examining Center the administration of written examinations for advancement was partially centralized and partially decentralized. The Bureau of Naval Personnel constructed, distributed and scored the examinations for Chief Petty Officer. Designated commanders ashore and afloat were directed and authorized to construct, distribute and score examinations for pay grades E-4, E-5, and E-6 within their respective commands.

Annually the Bureau of Naval Personnel received nominations from commanding officers of eligible first class petty officers. The written examinations for Chief Petty Officer, which were prepared by the Bureau, were distributed

to designated commanders. Examining boards were convened by these designated commanders for the purpose of proctoring the examinations. Upon completion of the examinations they were forwarded by the examining boards direct to the Bureau for grading. The Bureau published periodically the names of personnel whose advancement to Chief Petty Officer was authorized from a master eligibility list. Thus advancement to CPO was conducted on a service-wide competitive basis.

The administration of the testing program for advancement of enlisted personnel to pay grades E-4, E-5, and E-6 was conducted on an area-wide basis. Periodically the Bureau published and distributed general instructions. Here it is important to note that designated commanders ashore and afloat were given full authority over the administration of the written examinations within their respective commands. Hence, the nature of competition was area-wide rather than service-wide. In this instance the commanders convened examining boards to construct, distribute and grade the written tests. Within each area or command, as the case may be, eligibility lists were prepared by the examining boards as a result of the tests given. It was from these eligibility lists that advancements were effected upon receipt of quotas from the Bureau. Thus it can be seen that any one man was in competition with only those under the same broad command who were striving for advancement to the same rate

within the same rating.

Advancement to non-petty officer rates covers pay grades E-2 and E-3. Advancement to pay grade E-2 usually takes place upon completion of 3 or 4 months recruit training. Practical factors and a written military examination are administered by the recruit command. Advancement to pay grade E-3 is made by commanding officers without regard to competition or quotas. Eligible personnel are examined locally in the practical factors. Written tests on military and professional subjects are prepared, given and graded locally. A passing mark is all that is required.

CHAPTER III

STEPS TAKEN TO ESTABLISH THE CENTER

Board Convened by the Bureau of Naval Personnel. The need for improvement in the Navy's testing program for promotion was indicated during the years following World War II. Accordingly, the Chief of Naval Personnel convened a board on 20 October 1948 to determine the mental qualifications and best administrative procedures for promotion of Naval personnel.[1] This planning group, hereinafter referred to as the "Board," consisted of nine Naval officers as members and one Naval officer as a recorder. All of this group were Naval officers on duty in the Bureau of Naval Personnel. Representatives nominated by other Naval bureaus and offices participated in meetings of the Board to assist members in their deliberations.

The first meeting of the Board was called for 24 November 1948 to plan courses of action, methods and procedures to accomplish its purpose. The Chief of Naval Personnel proposed a comprehensive agenda for use by the Board.[2] He suggested the general method of attacking the problem and

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[1] Chief of Naval Personnel letter, Pers-41a-hl, 20 October 1948.

[2] Chief of Naval Personnel letter, Pers-823-jr, 19 November 1948.

outlined the scope of the Board's work within its precept. As a result of this preliminary meeting the Board was divided into two committees to consider different aspects of the problem.[3] One committee, known as the Administrative Group, was directed to study problems concerning the mechanics or administration of promotion requirements. The other committee, was directed to consider problems concerning promotion qualifications.

Administrative Group's Initial Recommendations. The Administrative Group met on 2 December 1948 and submitted its initial recommendations:[4]

> ...that the Navy establish one examining center under management control of BuPers which will function for the entire Naval establishment. By this plan all activities doing the same or similar work would be consolidated, thereby eliminating duplication and reducing to a minimum the total personnel and funds necessary to care for these needs of the Naval establishment. It would automatically achieve control of the technical standards desired for each enlisted rate. This is not being accomplished now and is necessary if any standard of technical quality is ever to be achieved. It would eliminate hundreds of local examining boards, including those afloat, now necessary for preparing and marking enlisted examinations for advancement in rating. It is considered that the man hours saved for operating personnel would justify the cost of a consolidated examining activity.

Further recommendations were made, contingent upon acceptance of the initial recommendations:

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[3]Chief of Naval Personnel letter, Pers-823-jr, 29 November 1948.

[4]Chief of Naval Personnel letter, Pers-637A-nj-3, 2 December 1948.

> ....that...the mission of the examining center would be to (1) discharge the responsibilities connected with preparing, distributing, and scoring all promotional examinations for officers and men of both the regular Navy and Naval Reserve; or (2) discharge the above responsibilities and in addition the preparation of study materials and aids for assisting personnel in preparing for advancement. In the event that the idea of an examining center is approved, subsequent study will be made to determine whether the first or second mission outline above is the most desirable.

Report of Visit to Educational Testing Service. The Administrative Group, on 21 December 1948, made a visit to Princeton for the purpose of studying the procedures and techniques employed at the Educational Testing Service. The report of the findings of this study were of particular importance to the problems confronting the Board.[5] It was found that the Educational Testing Service was organized to supply various educational institutions with standardized objective type tests in a wide variety of subjects. Tests are prepared for college entrance boards, for legal and medical schools, for entrance to the military and Naval academies and for many other activities. Continuous research is employed to insure reliability and validity of test items. For efficient accurate operation the latest types of mechanical sorting, punching and calculation machines have been installed.

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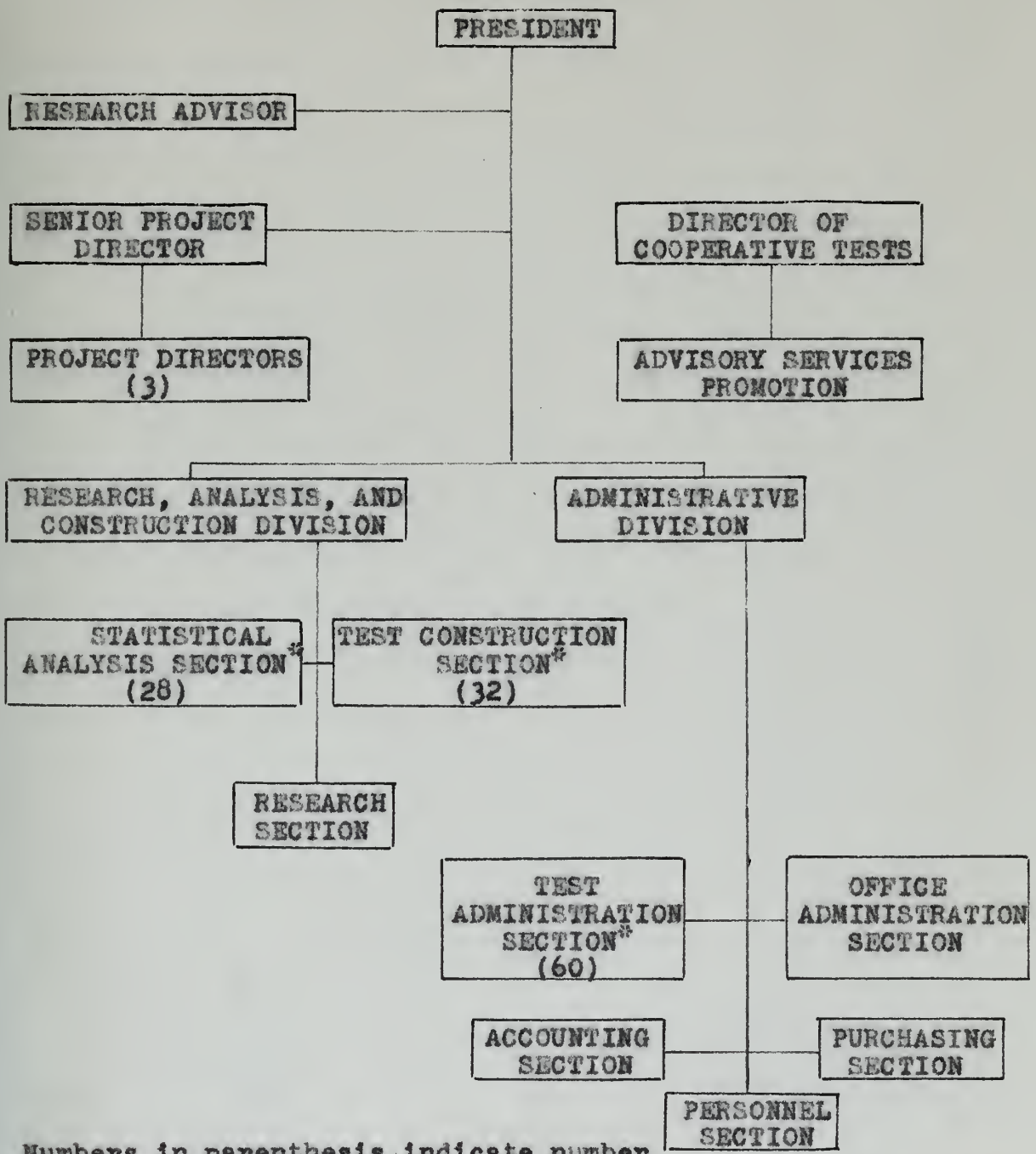
[5]Chief of Naval Personnel letter, Pers-637A-nj-2, 29 December 1948.

The visiting Group was particularly interested in the organization of the Testing Service. The Testing Service is under the direction of a President assisted by a number of staff advisors. (See Organization Chart on page 29). There are two main divisions. One comprises the professional functions of research, statistical analysis, and test construction. The other contains the administrative functions including test administration, office administration, accounting, purchasing, and personnel. In the test construction section it was found that the general time limits for developing individual items varied from fifteen minutes to three hours depending upon the complexity of the subject matter. Carefully selected personnel with specialized technical training were employed as item writers. Each group of item writers developed and evaluated its own test items with quality control being exercised by the group collectively. The use of pre-tests was a regular part of the evaluation of test items. The majority of test items were of the multiple choice type and it was pointed out to the visiting Group that this type of item would lend itself best to the Navy's purpose. It appeared that the work load of the Testing Service was about one-half of what was anticipated for the Naval Examining Center. On that basis it was felt at this time that the Center should have some 160 personnel for full scale operation.

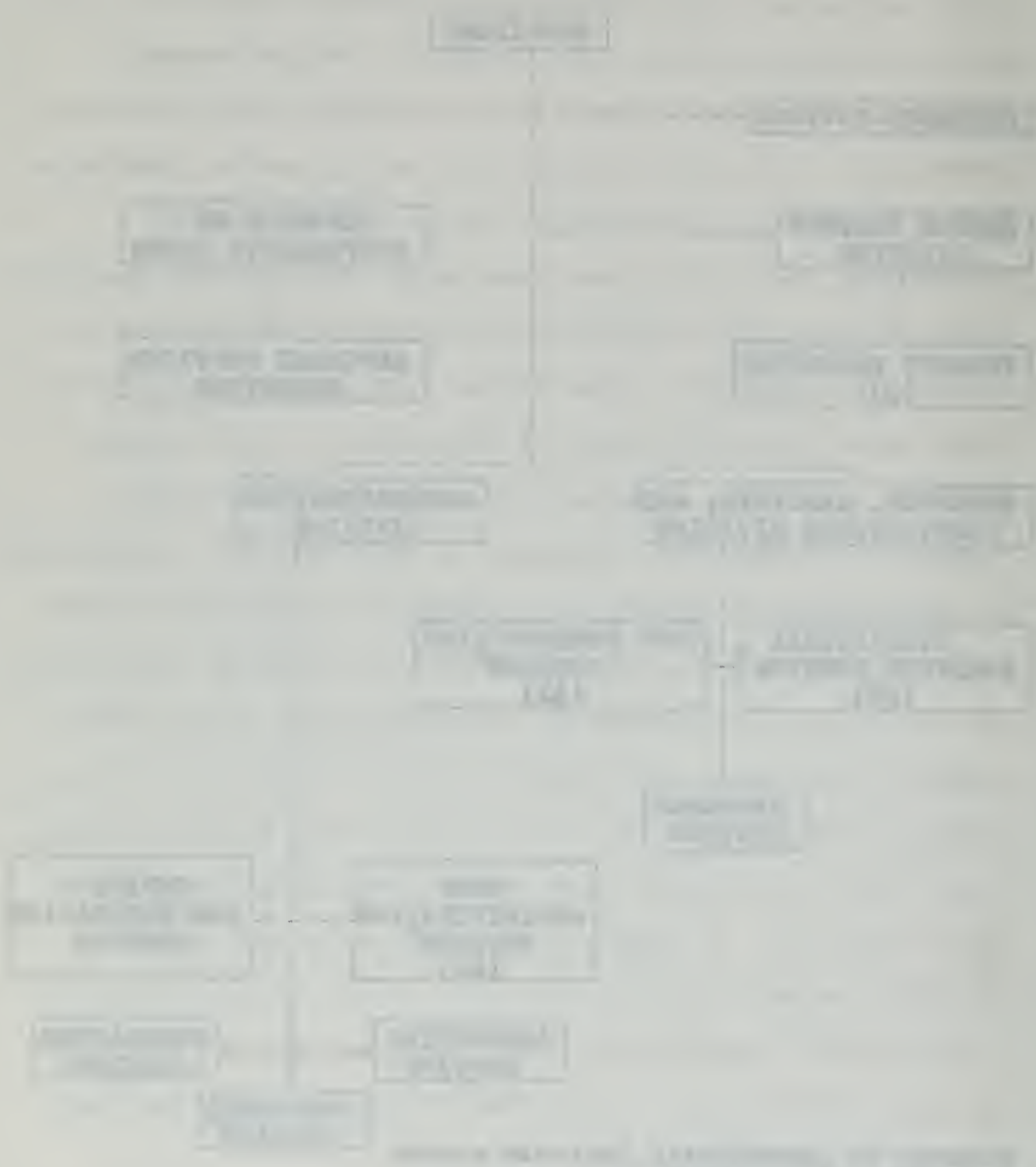
ORGANIZATION CHART

EDUCATIONAL TESTING SERVICE

PRINCETON, N. J.



Numbers in parenthesis indicate number of personnel employed.
The Navy was primarily interested in the sections marked *.



Report of Sub-Group on Organization. A Sub-Group on Organization, which was part of the Administrative Group, submitted a report on 3 January 1949 which was the result of its special study.[6] This report contained findings and recommendations in the areas of organizational relationship, organization of the Center, and personnel. Specific recommendations in the first category stated: that the Center should be under the military control of the activity to which attached; that it should be located at a large training center such as found at Norfolk, Great Lakes or San Diego; that management control[7] should be exercised by the Bureau of Naval Personnel; and that technical control[8] should be exercised by the Research Division of the Bureau.

Concerning the organization of the Center it was specifically recommended: that there should be three major functions which include test construction, statistical analysis, and administrative service; and that the test

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[6]Chief of Naval Personnel letter, Pers-637A-nj-1, 3 January 1949.

[7]Management control defined by Navy Regulations: The direction exercised in other than military matters, by an authority of the Naval Establishment over a unit of the Naval shore establishment in the administration of its local operating functions.

[8]Technical control defined by Navy Regulations: The specialized or professional guidance and direction exercised by an authority of the Naval Establishment in technical matters.

construction function be broken down into occupational fields with a qualified civilian technician assigned to each field. (See Chart on page 32).

In regard to enlisted personnel this group felt that the majority of specialized ratings should be obtained from the nearest Naval activity on a temporary basis. Nine civilians and 25 officers were recommended as key personnel for the necessary functions.

Additional findings and recommendations concerning equipment and space were included in the above report. It was felt that necessary equipment of various types should be procured and that all scoring should be by machine. In connection with space requirements it was considered that a minimum of 300,000 square feet should be provided for full scale operation.

Report of Sub-Group on Examinations. A Sub-Group on Examinations, also a part of the Administrative Group, submitted a report to the Administrative Group on 7 January 1949 which is of interest.[9] It was recommended that objective type multiple choice items be employed rather than essay or other type questions. It was considered that proper administration of examinations would require outlining

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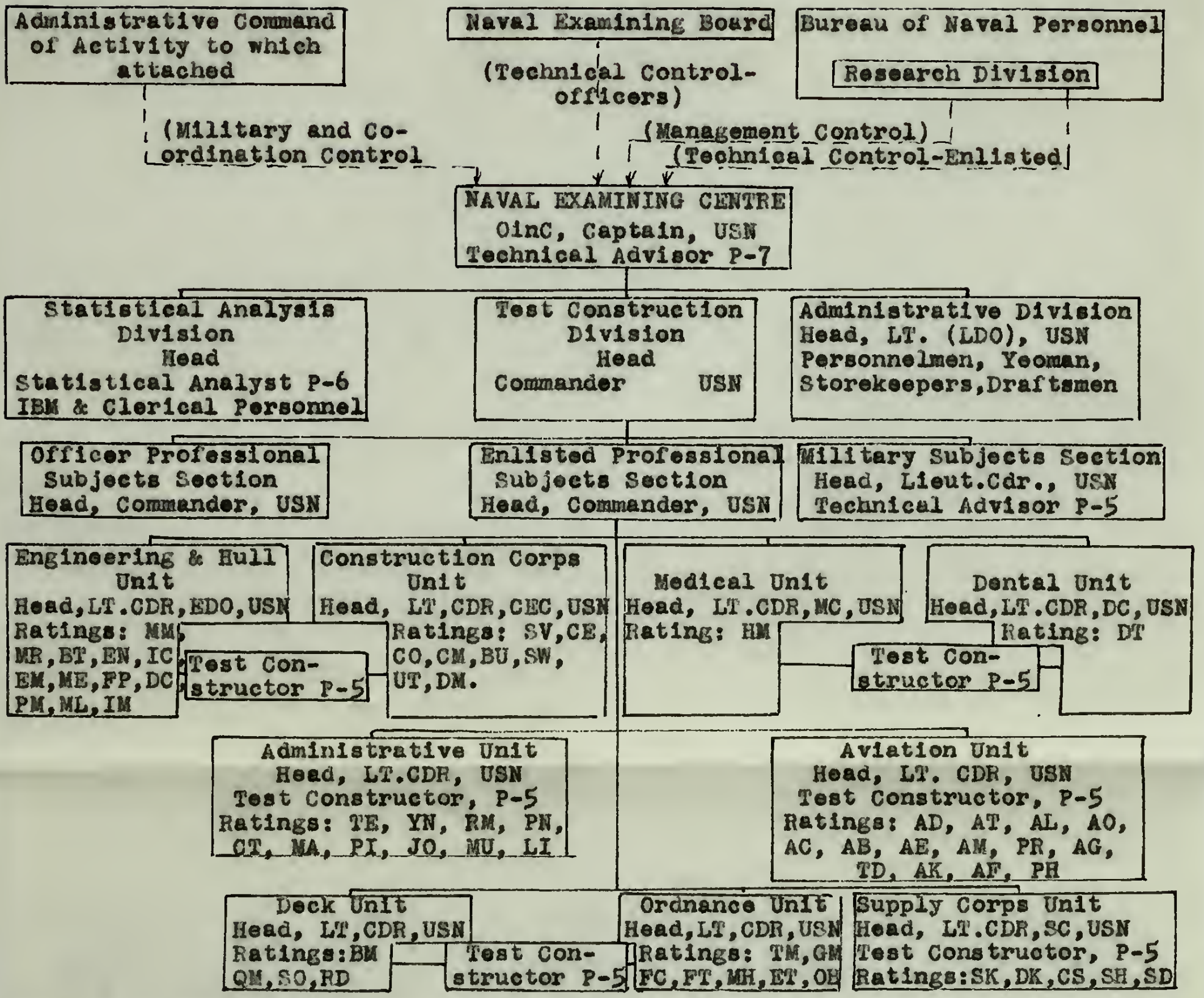
[9] Chief of Naval Personnel letter, Pers-321A, 7 January 1949.

Recommended Organization
NAVAL EXAMINING CENTRE



Summary of Key Personnel:

MILITARY:		CIVILIAN:	
Captain	1	P-7	1
Commanders	3	P-6	1
Lt. Cmdrs.	10	P-5	7
Lieutenants	1		
	25 Total		9

ENCLOSURE (A)

subject matter, test construction, validating by sample testing, printing, distribution, scoring, reporting results and revision of test items through statistical analysis. With respect to the actual scoring of tests it was determined that one hand scorer could mark about 2,000 examinations per month and that by IBM machine this could be raised to about 20,000 per month.

Promotion Group's Report. The Promotion Group submitted a report on 7 February 1949 of its study of administrative procedures for the promotion of Naval enlisted personnel.[10] This report is of particular interest in that it emphasizes the advantages which would result from the centralized administration of examinations. The Group had access to old examinations to support their conclusions. Portions of this report are quoted here to show the concept of centralization which reappeared at this time:

> ...The present system of constructing and administering professional examinations for enlisted personnel is decentralized and void of technical and administrative efficiency. Examinations are prepared by a large number of Naval personnel and conducted by hundreds of local examining boards, operating, for the most part, independently of one another, under the general direction of seventeen command boards.
>
> Present examination procedures permit the existence of various undesirable conditions which must be expected under the circumstances. As a general rule, examinations are unscientifically constructed, poorly organized, unbalanced in form and scope, and frequently become merely

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[10] Chief of Naval Personnel letter, Pers-637A-jb-6, 7 February 1949.

a play on words. As a result, they fail to adequately measure significant skills or emphasize some skills out of all proportion to their importance.

This dispersed system offers little opportunity for over-all competition between enlisted men of the same rate. As a result, better qualified men at one command frequently fail to pass an examination because of its exacting nature, while less qualified men at other commands are able to pass a comparatively simpler examination.

One of the basic concepts of the Navy promotional examination system should be the establishment and maintenance of standardized levels of achievement for each rating. These levels cannot be maintained under the present system with its hit or miss methods of examination construction.

By the same token, the man hours required by Naval personnel for constructing examinations is time devoted to a very specialized type of work in which they have little interest and for which they may be totally unqualified. The time consumed could be used to much better advantage in exercising military responsibility and improving professional knowledge.

Wide interest in revising the present system is reflected in requests continually being made by various commands for improving existing methods of preparing and administering examinations.

In view of the above, a revision of the present system seems mandatory. The most practicable appears to be centralization of responsibility for the preparation, distribution, and scoring of promotion examinations for enlisted men.

The recommendations contained in this same report serve to illustrate the determination of the Board to establish a Naval Examining Center. This report stated that the Center should be established as soon as possible at Norfolk, Virginia under the military and coordination control of a large administrative command with technical and management control exercised by the Bureau of Naval

Personnel and with technical control by the Research Division of the Bureau. It was recognized that close liaison would have to be maintained with the Training Division of the Bureau in order to insure a promotion program best suited to the Navy's needs. Considerations concerning personnel allowances were included in the recommendations. Large numbers of technical personnel both officer and enlisted were expected to be ordered to the Center for temporary duty for test construction.

Establishment of the Center. Although the complete file on the proceedings of the Board are not available the foregoing will serve to illustrate the nature and scope of the Board's study. As a direct result of this comprehensive study by the Board, the Chief of Naval Personnel made an official request to the Chief of Naval Operations that the Naval Examining Center be established.[11] Accordingly, the Center was officially established under an officer in charge on 1 May 1949.[12] Its location was to be at the South Annex of the Naval Receiving Station, Naval Base, Norfolk, Virginia. The Secretary of the Navy directed that this activity be under the military command and coordination control of the Commanding Officer, United States Naval Receiving

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[11] Chief of Naval Personnel letter, NM10(2) Pers-2522/ AEG Serial: L-20, 22 April 1949.

[12] SecNav letter, op 24c/cj MN/A4-2 Serial: 176P24, 26 May 1949.

Station, Norfolk, Virginia and under the management control of the Bureau of Naval Personnel. The Chief of Naval Personnel formulated the mission of the Center as follows:

> The Naval Examining Center is charged with the responsibility for preparing examinations for advancement of all enlisted Naval personnel, both regular and reserve. In addition, the Center is responsible for distribution of the tests, preparation of directives for administration of examinations, including security measures, scoring examinations, analysis of past examinations and preparation of reports on the qualifications and competitive standings of the personnel examined.

Thus the machinery which was set in motion on 20 October 1948 resulted in the establishment of a new and unique activity in the Navy engaged in the centralized administration of the testing of enlisted personnel for advancement in rating.

Relationship of the Center to the Bureau of Naval Personnel. It is desired at this point to show the relationship of the Center to the Bureau of Naval Personnel. None of the Bureau organization charts show the units with which the Center has either direct or indirect contact. Dr. E. D. Carstater, Head of the Training Research Branch of the Research Division in the Bureau has gathered information for the writer which explains this relationship. The following brief outline shows a partial organization of the Bureau of Naval Personnel. Operation units which concern the work of the Center are indicated. Following the organizational

outline is a brief explanation of the functions performed by the units concerned with the Examining Center.

PARTIAL ORGANIZATION OF THE

BUREAU OF NAVAL PERSONNEL

Pers Chief of Naval Personnel
Pers-1 Deputy Chief of Naval Personnel
Pers-11 Administrative and Management Division
(1) Pers-112 Personnel Branch
Pers-15 Research Division
(2) Pers-151 Training Research Branch
(3) Pers-153 Billet and Qualifications Research Branch

Pers-A Assistant Chief for Plans
Pers-A1 Plans and Policy Control Division
Pers-A11 Policy Control Branch
Pers-A12 Personnel Plans Branch
Pers-A13 Complements and Allowances Branch
(4) Pers-A132 Continental Shore and Overseas Bases Section
(4) Pers-A14 Strength and Statistics Branch

Pers-B Assistant Chief for Personnel Control
Pers-B1 Officer Personnel Division
Pers-B11 Distribution Branch
(5) Pers-B111 Distribution Control Section
Pers-B2 Enlisted Personnel Division
Pers-B21 Distribution Branch
(5) Pers-B211 Detailing Section
Pers-B22 Performance Branch
(6) Pers-B223 Promotions Section
Pers-B3 Personnel Transportation Division
Pers-B4 Medals and Awards Division
Pers-B5 Retirement Division
Pers-B6 Recruiting Division

Pers-C Assistant Chief for Education and Training
Pers-C1 Training Division
(7) Pers-C11 Standards and Curriculum Branch
(8) Pers-C111 Curriculum and Instructor Training Section
(8) Pers-C112 Training Publications Section
(8) Pers-C115 Distribution Section
Pers-C12 Field Administration Branch

(8) Pers-C121 Enlisted Training Section
(8) Pers-C123 Functional Training Section

Pers-D Assistant Chief for Naval Reserve
Pers-D1 Naval Reserve Division
(9) Pers-D111 Organized Reserve Branch
(9) Pers-D114 Aviation Program Branch
Pers-E Assistant Chief for Records
Pers-E1 Personnel Accounting Division
(10) Pers-E11 Tabulated Records Branch
Pers-E2 Officer and Miscellaneous Record Division
(11) Pers-E3 Enlisted Services and Records Division

Pers-F Assistant Chief for Legislation and Liaison

Pers-G Assistant Chief for Morale Services

Pers-H Assistant Chief for Finance and Property Management
(4) Pers-H1 Fiscal Division
(4) Pers-H2 Shore Station Development Division

Pers-J Chief of Chaplains

Explanatory Notes

1. Advisory service on civilian personnel matters.
2. Advisory service via Pers-C1 or Pers-B223 on matters of test development and evaluation techniques and on procedures for distribution and administration of the tests.
3. Prepares changes to the Manual of Qualifications for Advancement in Rating which is the basic guide in the preparation of tests.
4. Liaison through Pers-C1 on matters of complements and allowances, facilities, budgets and accounts.
5. Recommends allowances of officer and enlisted personnel for the Center, assigns officers to duty, keeps allowance of required ratings filled.
6. Direct contact on matters of scheduling the administration of examinations, numbers of personnel eligible, regulations for administration and handling, quotas for advancement, reports to commands and BuPers on advancements authorized.
7. Direct contact for technical and management control of the Center.
8. Through Pers-C11 provide information for coordination of test content with training programs in effect.

9. Through Pers-C1 and/or Pers-B223 keeps the Center informed of requirements of examinations for Surface Organized Reserve units and Naval Aviation Reserve units.

10. Advises on procedures and equipment for handling IBM operations.

11. Audits eligibility of candidates for advancement. Files NavPers form 624 in enlisted record jackets.

It is significant to note that dual direct channels have been established between the Bureau and the Center, namely through the Enlisted Promotions Section and the Training Division.

CHAPTER IV

DEVELOPMENT OF THE ORGANIZATION OF THE CENTER

What conditions need to be satisfied to carry out the decision to establish the Center? It has to be large enough with sufficient personnel and adequate equipment so that it can handle the anticipated load and handle it promptly. Otherwise it won't work. It has to rely on a system of communications to make it physically possible to reach Naval activities all over the world. In this regard it must notify all Naval personnel of forthcoming examinations; it must send those examinations rapidly; and it must receive the results promptly for effective handling. Furthermore, it is essential that security of examinations to be maintained at all times.

The Center must be capable of devising examinations which can be regarded as suitable and competent. To accomplish this it cannot rely solely on its officers and enlisted personnel. The techniques of testing and measurement are too highly specialized to expect Naval personnel to be proficient in that field. Thus a major problem of the Center is one of organization such that competent civilian test technicians can be brought in under conditions that will be an inducement for them to stay. This raises another problem of the status of civilians. On that point it is significant to

note that the Center went through reorganization several times.

There were three distinct and different phases involved in the evolution of the Center's organization. Before describing these phases, however, it is necessary to present the duties of the Officer in Charge and his Assistant.

The Officer in Charge is assigned directly by the Chief of Naval Personnel. He is under the military command of the Commanding Officer, Naval Receiving Station, Norfolk, Virginia and under the management and technical control of the Bureau of Naval Personnel. The Officer in Charge is responsible for the direction and supervision of all activities of the Center including:

> (a) preparation of examinations for advancement or promotion of Naval personnel, both regular and reserve;
>
> (b) distribution of tests;
>
> (c) preparation of directives for administration of examinations;
>
> (d) scoring of examinations;
>
> (e) preparation of reports on the qualifications of personnel examined;
>
> (f) preparation and promulgation of analysis information to fleet and shore based commands and to the Bureau; and,
>
> (g) establishment and enforcement of security measures.

The Officer in Charge is further responsible for the entire

organizational structure under his command and for its efficient operation designed to accomplish effectively its mission.

The Assistant to the Officer in Charge is the line officer next in rank to the Officer in Charge who acts in his place during his absence. In accordance with Navy Regulations all orders issued by the Assistant are considered as emanating from the Officer in Charge. The Assistant Officer in Charge is responsible to the Officer in Charge for military discipline, organization, administration, security, and general efficiency of the activity.

The organization of the Center will be presented in three distinct phases in order to acquaint the reader with the nature of its development. First of all, the initial organization was designed to get the Center into operation with what personnel were then available. A job had to be done and was done under pressure to meet initial deadline dates. Lines of authority and responsibility were never clearly defined and the organization in 1949 and most of 1950 was never officially approved. It functioned and accomplished its mission but obviously it was not efficient or effective. The first major change came in September 1950 when an official organization chart was approved. Here an attempt was made to define duties and responsibilities and to recognize the technical nature of the activity.

Finally in March 1951 the present organization was developed and approved by the Officer in Charge.[1]

Initial Organization of the Center. The initial organization of the Center is indicated in Chart form on page 44. The Center was divided into three branches for administrative purposes: Production, Services and Utilization. Each Branch was divided into sections in accordance with specific duties. Under the Production Branch were the Control, Operations and Illustrations Sections. The Services Branch was divided into the following three sections: Administrative, Security, and Supply. The Utilization Branch had two sections: Field Administration, and Statistical and IBM. The Operations Section of the Production Branch was further sub-divided into eight groups which covered the entire Naval rating structure. It was within these groups that specialized enlisted personnel of all rates were assigned to begin the production of test items.

All functions were performed by military personnel with the exception of four civil service civilians. One civilian was Director of Educational Measurement. Another was Assistant Head of the Production Branch and two Educational Measurement Specialists were assigned to the Operations

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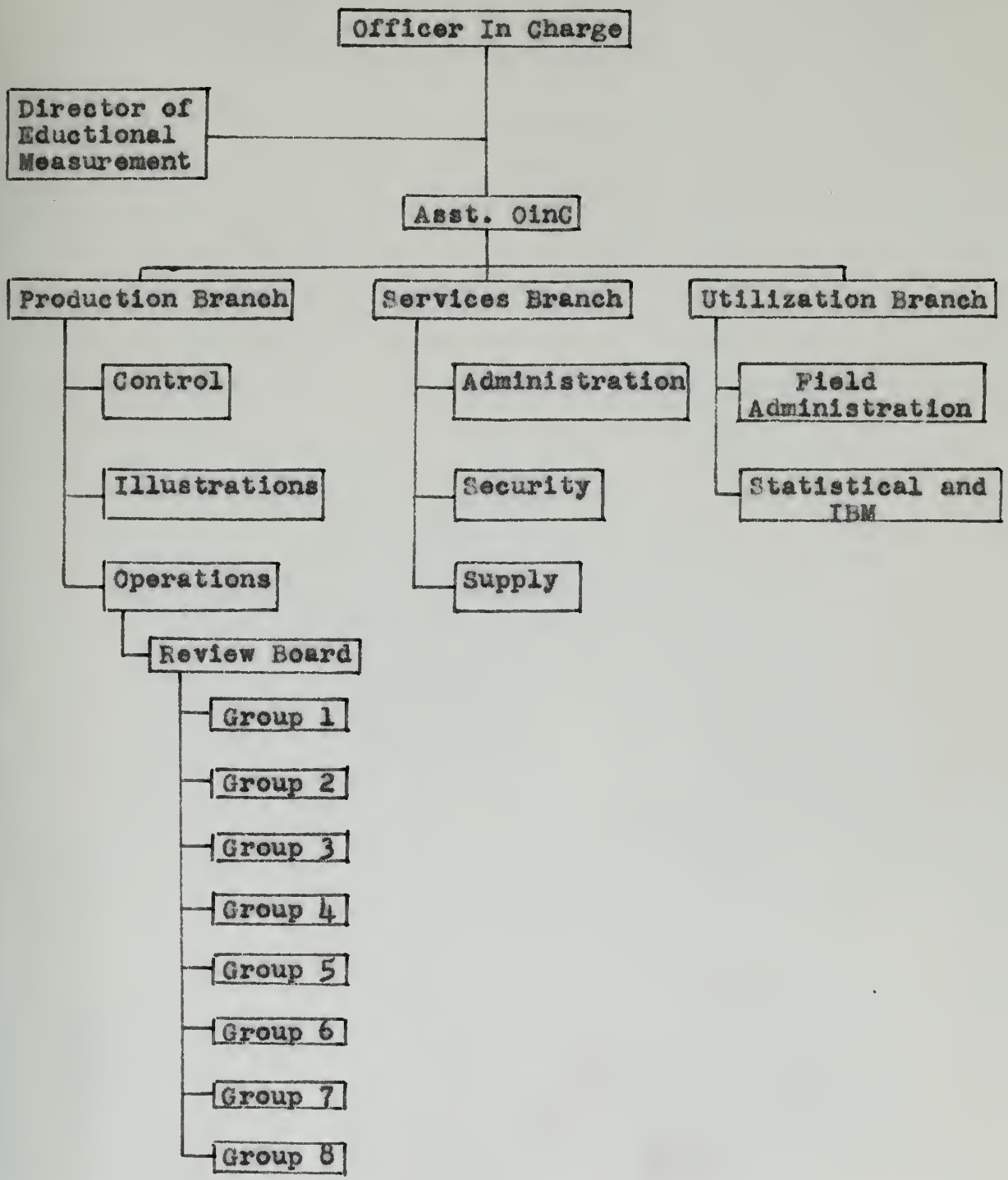
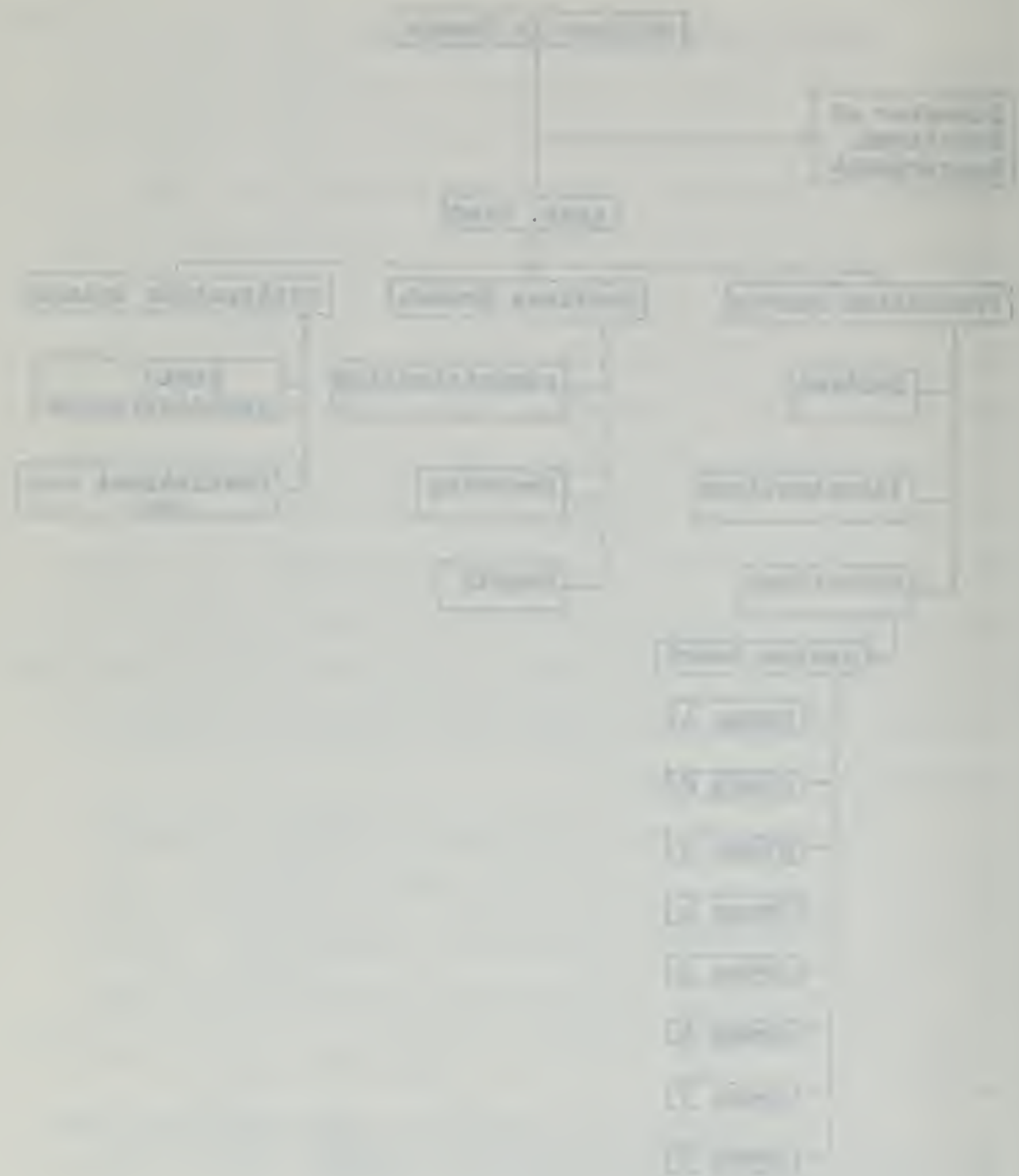
[1] U. S. Department of the Navy. Organization and Regulations of the U. S. Naval Examining Center. Restricted. 5th Naval District Publications and Printing Office, Norfolk, Virginia: 20 March 1951. VI-6 pp.

INITIAL ORGANIZATION CHART

NAVAL EXAMINING CENTER





Section. A discussion of the missions of each branch and section as originally set up follows.

The Director of Educational Measurement was the principal professional employee. He worked directly under the Officer in Charge and was responsible for the technical aspects of policy and operating procedures. Thus he acted as technical consultant to the Officer in Charge. He planned and directed formal and informal programs of training for all personnel assigned to the Center. He supervised and appraised the effectiveness of the civilian employees attached to the Center. He reviewed standard operating procedures for preparation of the testing program. He established standards, in keeping with the over-all objectives of the Examining Center, for the production and utilization of examinations in various rates. He reviewed and evaluated the procedures for administrative control of the testing program. He conferred with branch and section heads to indicate feasible and effective procedures and techniques for accomplishing tasks. He carried on liaison activities with the Bureau or Naval Personnel on technical matters concerning the mission of the Center. It was essential that the Technical Director, as he was sometimes called, keep himself informed of progress in the fields of training and education, tests and measurements, educational psychology, and statistics.

The Production Branch was assigned the mission of planning, constructing, and preparing for publication all examinations which were in connection with the advancement in rating of enlisted personnel of the Navy. Broad policy in examination construction rested with this Branch. To accomplish its mission it maintained liaison with technical bureaus and the operating forces of the Navy. It initiated requests for enlisted men to be assigned to the Center for temporary duty to assist in test production. These requests were made periodically, as conditions warrant, to insure the presence of personnel qualified in all the specific ratings. Transfers, sickness or emergency leave sometimes deplete the staff of key personnel. Thus in order to meet scheduled dates of test production it was necessary to insure that each of the 62 ratings were represented continuously by a qualified Chief Petty Officer. The Production Branch was responsible for conducting operational research, evaluation of test plans and the determination of priority as to tests to be constructed. It outlined tests in accordance with advancement requirements. To do this it obtained source material, maintained an up-to-date library, and maintained a classified item file. The classified item file represented those test items which were found by test analysis to be usable in future examinations. Further responsibilities of the Production Branch included the writing and

assembling of tests, designing layouts for test booklets and answer sheets and the preparation of final copies of examinations for proofreading and monitoring while in production.

Within the Production Branch the Control Section originated broad policy in examination construction. This section continually reviewed and evaluated test plans and experimental forms to insure conformity with general policy and editorial standards. The qualifications for advancement in rating were reviewed in the light of technological changes in material and equipment. The Control Section also maintained continuous review of study materials and manuals which were available to the fleet. Information on this subject was essential to the Operations Section for the purpose of framing items which would be fair.

The heart of the Center, with relation to the continuous production of test items, lay within the Operations Section. Test items were outlined in accordance with advancement requirements. Items were written, assembled, and reviewed. Constant attention to the principles of good test construction had to be observed by all persons within this section. The classified item file was started here and used by item writers for preparation of examinations. During all phases of production the test items were proofread and monitored to insure a finished product of the highest caliber. This section was also responsible for the

development of the design and layout for test booklets and answer sheets.

To assist in the orderly preparation of examinations the item writers were divided into eight groups within the Operations Section. Each group was given responsibility for originating test items for specified rates within definite occupational fields:

Deck, Ordnance, and Electronics
Precision Equipment
Administrative and Clerical and Steward
Miscellaneous
Engineering and Hull
Construction
Aviation
Medical and Dental

The duties of the Illustrations Section also were related to the production of examinations. It developed line drawings, schematic drawings and sketches for use in illustrating test items. It was considered desirable to have a certain percentage of each examination include test items which involve visual questions or alternatives. Items which required illustrations were submitted by item writers to the Illustrations Section early in their construction. Sketches were prepared, reviewed, checked and verified for exactness as the items proceeded through various stages to their approved form. Many of these illustrations were original and many were adapted from text books or manuals by masking and lettering. Statistical graphs were also prepared as directed.

A Review Board functioned within the Control Section for the continuous critical study of completed test items. Here a final appraisal of the correctness and exactness of items were made. Items which did not measure up to standard were returned to the originating group for reworking. Items which passed the Review Board were assembled into the final examinations in accordance with an approved test outline. Final responsibility of the Review Board involved approval of examinations for printing.

The Services Branch was required to furnish necessary services and materials to support the operations of the Center. It processed requests for temporary duty personnel which were originated by the Control Section. It maintained the records of personnel attached to the Center, making necessary entries into these records to insure their being up-to-date. This branch was responsible for the maintenance of the physical facilities and equipment of the Center. The receiving, stowing and issuing of supplies as well as the processing of requisitions for supplies were its major functions. Further, the accounting for materials in stowage and releasing of such materials on order had to be accomplished to insure efficient operation of the Center.

Another major function of the Services Branch was the operation of the mail room. Here all mail was received, opened, sorted and distributed. Examinations were wrapped

for forwarding to Naval units throughout the world. Completed examinations received here were turned over to the Utilization Branch. Finally, material of a confidential or secret nature was kept under appropriate custody until released to authorized personnel. Full security measures were maintained. The Services Branch was divided into three sections to assist in the accomplishment of its mission.

The Administrative Section planned and coordinated service functions, assigned work and determined priorities. Requisitions for temporary duty personnel were processed. Routine correspondence to and from the Center was handled in this section. The operation of the mail room was one of its major functions. Whenever clerical service was needed by another section the Administrative Section distributed its available personnel as directed by the Head of the Services Branch. Often the typing of test items could be a bottleneck in meeting production schedules. Hence it was essential that a reserve typing pool be available as it was in this section. Finally, the Administrative Section was responsible for mimeographing, manuscripts of bulletins, station orders and other material.

The Security Section enforced security measures prescribed by the Officer in Charge. Preparing examinations for distribution to the Navy and receiving completed examinations for scoring involved the alert observance of full

security measures. The Security Section was responsible for the stowage and release of confidential and secret material. Finally, other functions required the maintenance of physical facilities and equipment and the control of transportation for the Center.

The Supply Section, as the name implies, was responsible for the preparation and processing of requisitions for supplies. It received, stowed and issued supplies for the Center's operation and maintained appropriate supply records and accounts.

The Utilization Branch was charged with the responsibility of scoring and recording the scores of all examinations. It disseminated information, planned the utilization of examinations in accordance with the needs of the service, and implemented plans by devising appropriate forms and procedures for use within and without the Center. Circular letters and dispatches addressed to all activities of the Navy regarding the availability and use of examinations originated in this Branch. Bulletins of information describing the form, content and function of examinations were prepared, with sample questions. Orders from the fleet and shore establishments for specific examinations were received and processed. In doing this, special records were kept to verify the distribution of examinations against the prepared distribution list. Finally, one of this branch's main functions was the establishment of procedures for

reporting test scores, including the computing of multiples for determining relative standing of candidates. The following two sections were established within the Utilization Branch to accomplish the functions assigned.

The Field Administration Section was responsible for planning and originating directives and forms for distribution. It was charged with the administration of test materials including the shipment, handling, stowage and return of such material. In connection with orders for examinations it prepared a distribution list of activities, received and approved orders, tabulated orders and maintained records of their filing through IBM order control. The distribution was verified against the prepared list. Returned used or unused examinations were checked in order to prepare lists of activities to be contacted for explanation of unsatisfactory returns. Procedures for reporting test scores and computing multiples were established. Finally, score reports were checked against test returns to insure correctness.

The Statistical and IBM Section conducted routine operational studies for the Production Branch, including test analysis. It used various IBM machine systems for control of inventories and test scores. Completed examinations were scored, records prepared and tabulated, and reports of qualified personnel were prepared.

The Personnel allowance for the Naval Examining Center, as initially authorized by the Bureau of Naval Personnel, consisted of 23 commissioned officers, 110 enlisted men, and 4 civilian civil service employees.

The officer complement consisted of the following:

Number	Rank
1	Captain (Line), Officer in Charge
1	Commander (Line), Asst. OinC
1	Commander (CEC)
7	Lieutenant Commanders (Line)
1	Lieutenant Commander (MSC)
7	Lieutenants (Line)
1	Lieutenant (SC)
3	Lieutenants (JG) (Line)
1	Lieutenant (JG) (SC)

The civilian personnel complement consisted of the following:

Number	Civil Service Rating	Assignment
1	GS 13	Director of Educational Measurement
1	GS 12	Asst. Head, Production Branch
2	GS 11	Educational Measurement Specialists

The enlisted complement is tabulated by rate as follows:

No.	Rate	No.	Rate	No.	Rate	No.	Rate
1	BMC	2	PNC	4	SN	1	UTC
2	QMC	1	PN1	1	MMC	1	ADC
1	RDC	1	MAC	2	ENC	1	ATC
2	SOC	2	MA1	1	MRC	1	ALC
2	TMC	2	MA2	1	BTC	1	AOC
1	GMC	2	SKC	1	EMC	1	ACC
1	FCC	1	SK1	1	ICC	1	ABC
1	FTC	1	DKC	1	MEC	1	AEC
1	MNC	2	CSC	2	FPC	1	AMC
1	ETC	1	SHC	2	DCC	1	PRC
1	IMC	1	JOC	1	PMC	1	AGC

No.	Rate	No.	Rate	No.	Rate	No.	Rate
3	YNC	1	PIC	1	MLC	1	TDC
6	YN1	1	LIC	1	SVC	1	AKC
7	YN2	1	DMC	1	CEC	1	AFC
12	YN3	1	DM1	1	CDC	1	HMC
1	OMC	1	DM2	1	CMC	2	DTC
1	TEC	1	MUC	1	BUC	1	SDC
1	RMC	1	PHC	1	SWC		

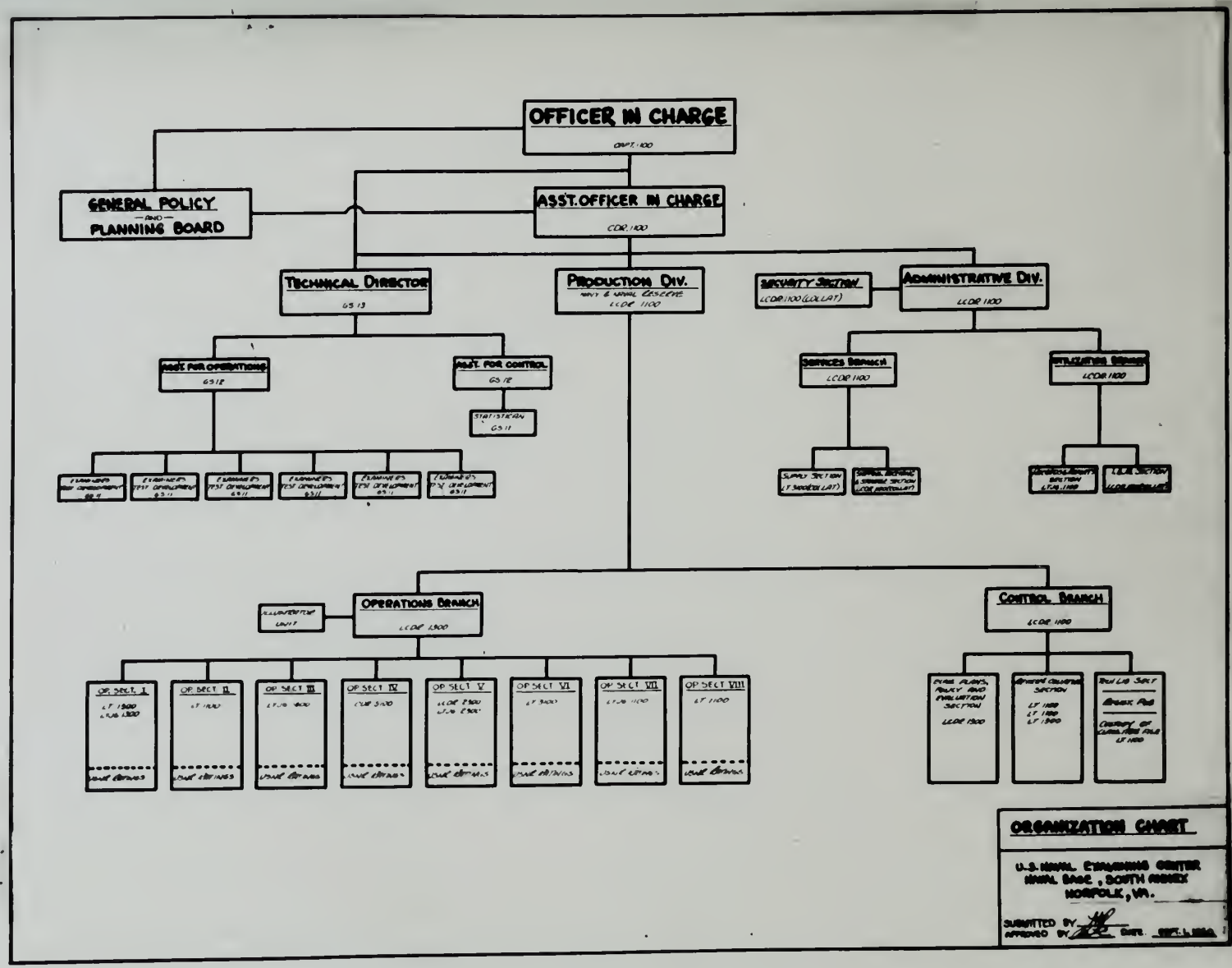
It is significant to note the number and variety of rates of Chief Petty Officers that were attached to the Center. This group was utilized in formulating original test items in order to obtain technical accuracy in their construction. This permanent staff was augmented from time to time by military personnel assigned to the Center for temporary duty. As mentioned earlier, this step is often required in connection with the preparation of specific examinations to meet scheduled advancement programs.

First Major Change in Organization. The need for a change in organization appeared to be indicated after the Center had been in operation about one year. Considerable discussion in policy meetings took place over the problem of fitting civilians into the organization. Should they be definitely within the chain of command above or below the military personnel? Should they be outside the chain of command and function entirely in a staff advisory capacity? In this regard they would form a hierarchy of their own apart from the military personnel. Or, should the civilians be located at the various levels within the chain of command,

but acting in an advisory capacity to designated military personnel?

These problems were of grave concern to the Officer in Charge. The Center was functioning in the manner described but the organization that existed was not officially approved. Personnel who could best do the job were working long hours while others made little or no contribution. This was partly the result of the lack of clearly defined duties and responsibilities. Basically the initial organization was sound but it needed evaluation in the light of experience before it could receive the stamp of official approval. The question of the best way to organize the Center, then, involved a decision on how to relate the various necessary functions with each other and what to do with the civilians. After all, it was clearly indicated what functions had to be performed to accomplish the mission and most or all of these tasks were in operation. With regard to the four civilians, who were originally attached to the Center, they were assisting in every way to give the activity the benefit of their technical training in tests and measurement. However, none of them could make his presence effective without the official backing of the Officer in Charge.

The tendency of the military personnel to consider the civilians as advisers led to the first major change in the Center's organization. The Chart on page 56 shows the


OFFICER IN CHARGE
CAPT. 1100
GENERAL POLICY
— AND —
PLANNING BOARD
ASST. OFFICER IN CHARGE
CDR. 1100
TECHNICAL DIRECTOR
GS-13
PRODUCTION DIV.
LCDR 1100
SECURITY SECTION
LCDR 1100 (COLLAT)
ADMINISTRATIVE DIV.
LCDR 1100
ASST. FOR OPERATIONS
GS-12
ASST. FOR CONTROL
GS-12
STATISTICIAN
GS-11
SERVICES BRANCH
LCDR 1100
LCDR 1100
OPERATIONS BRANCH
LCDR 1900
CONTROL BRANCH
LCDR 1100
OP. SECT. I
OP. SECT. II
OP. SECT. III
OP. SECT. IV
OP. SECT. V
OP. SECT. VI
OP. SECT. VII
OP. SECT. VIII
ORGANIZATION CHART
U.S. NAVAL TRAINING CENTER
NAVAL BASE, SOUTH ANNEX
NORFOLK, VA.
SUBMITTED BY
APPROVED BY
DATE

approved organization which became effective on 1 September 1950. It will be noted that the functions previously described in the initial organization are all incorporated in the change but their relationship with each other was altered somewhat. Of importance is the fact that the organization, as indicated here, was officially approved by the Officer in Charge in an effort to improve upon the previous system.

It is significant to note that the Officer in Charge made a definite decision regarding the place of the civilian employees. Also the organization included an increase in allowance of citizens to 10. All the civilians were grouped together in their own hierarchy and functioned in an advisory capacity. The Technical Director, who was the senior civilian, came under the Officer in Charge or his Assistant. There were two civilians directly under the Technical Director who functioned as advisers to the Operations and Control Branches respectively. Six civilians were designated examiners for test development and actually worked as advisers with the designated operations sections involved in test construction. Thus we see a temporary solution to the problems of organization involved in the growth of the Center.

One new element went into effect with the change in organization was the formation of the General Policy and

Planning Board. This Board had as its members the Officer in Charge, the Assistant Officer in Charge, the Technical Director, the Head of the Production Division, and the Head of the Administrative Division. It was intended that this Board would function in matters of major policy which affected the Center. In its deliberations it would have the benefit of the experience and ability of its members who were the key personnel of the Center. However, the Officer in Charge, in accordance with his responsibility, made the final decision on all policy matters. Actually the General Policy and Planning Board was nothing more than a meeting of Heads of Departments or key personnel which must function in any organization.

It wasn't long before it was realized that the technical nature of the Center's work required a stronger organization. It became apparent that the change made in September 1950 did not utilize to the fullest extent the services of the civilian personnel who were trained in the specialized field of testing. Not only were the military personnel constantly going to the civilians for advice but there existed the major consideration of changes in military personnel to and from the Center. A strengthening of the permanent organizational structure was clearly indicated. Accordingly, in March 1951 another major change was officially made in the Center's organization.

Present Organization of the Center. The present organization of the Center[2] is the result of experience gained in almost two years of operation. (See the Organization Chart on page 60). The most significant change which came about was the return to an operational chain of command relationship of functions. The civilian employees are placed within the chain of command at various levels according to their qualifications. Another significant change is the grouping of the Administrative Division as a staff function under the Assistant Officer in Charge. It will be recognized that the functions described in the initial organization continue to operate. A brief description of the present organization follows.

The Technical Director who is the principal civil service professional employee is directly under the Assistant Officer in Charge. He acts as technical consultant to the Officer in Charge and is responsible for the technical supervision of all personnel assigned to the Center. He is further responsible for the tasks performed by the Professional and Services Division, their Branches and their Sections.

It is significant to note that the Center is functionally organized into three major divisions: Administrative,

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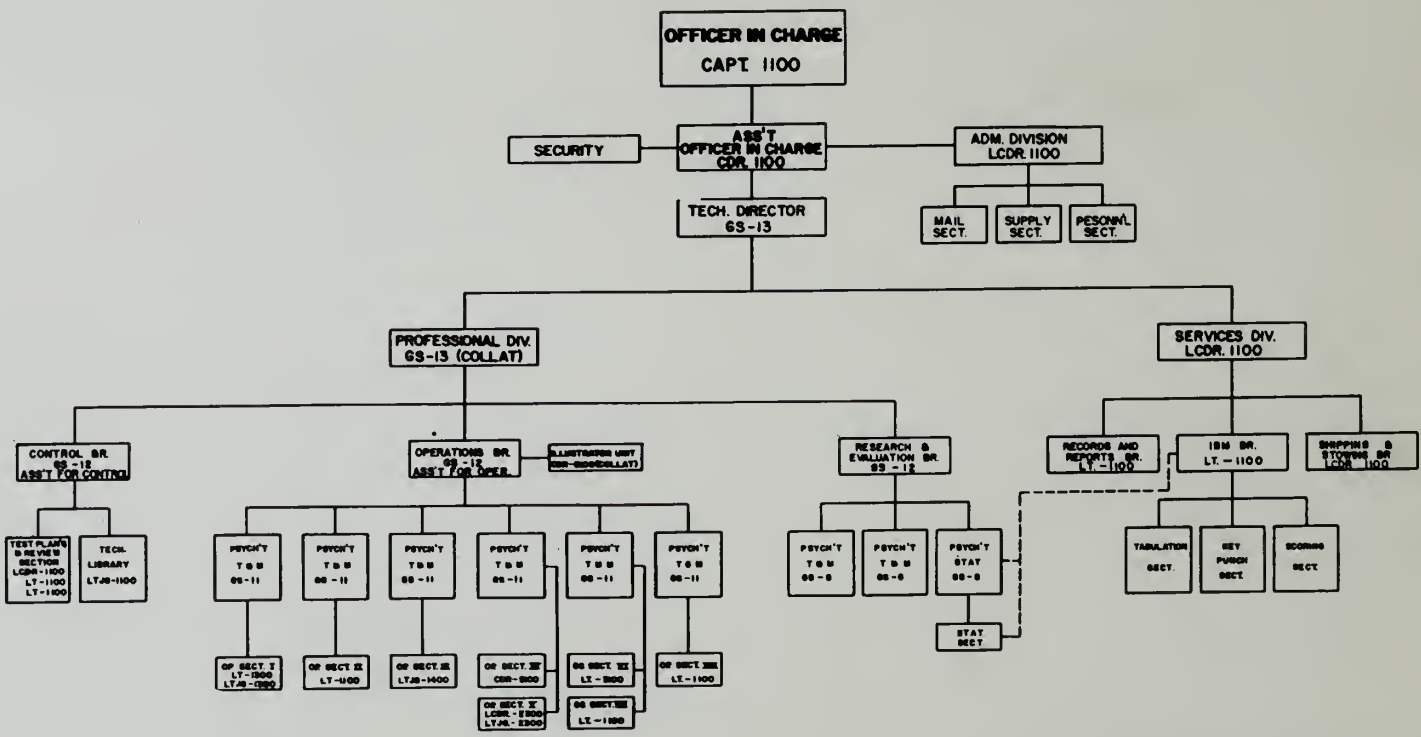
[2] Organization and Regulations of the U. S. Naval Examining Center, Loc. cit.



ORGANIZATION CHART

U.S NAVAL EXAMINING CENTER
NAVAL BASE, SOUTH ANNEX
NORFOLK, VA.

SUBMITTED BY _____
APPROVED BY _____ DATE 3-1-51

Professional, and Services. The Administrative Division, under the Assistant Officer in Charge, is responsible for various administrative, non-technical functions in support of the Center's mission. It is further divided into three sections: Mail, Supply, and Personnel. The Professional and the Services Divisions are under the Technical Director. Within the Professional Division are the Control, Operations, and Research and Evaluation Branches. The Control Branch is responsible for the review of examinations prepared to insure that they are appropriate, adequate and technically correct. The Operations Branch is the heart of the activity related to test construction. Within this Branch the various Operations Sections develop test items from approved bibliographies. The Research and Evaluation Branch conducts continuous research to establish evaluation procedures, prepares necessary reports on the performance of candidates for advancement in the examinations, and endeavors to insure uniform interpretation and application of statistical data.

The Services Division provides the many services required in the shipment and security of examinations, the processing of returns by IBM machines, and the compilation of data used in analyses and research. In the IBM Branch of this division the latest mechanical equipment is used to facilitate fast efficient tabulation of all data required.

Total personnel allowances provided for the Naval Examining Center at this time include: 22 officers, 13 civil service professional employees (Research Psychologists who are specialists in the field of educational testing and measurement), and 140 enlisted personnel including a representation from each of the 62 ratings of the current rating structure.

Officer Allowance and Assignments

Capt	Officer in Charge
Cdr	Assistant Officer in Charge
Cdr	Head, Operation Section IV collateral duty as Head, Illustration Unit
LCdr	Head, Administrative Division
LCdr	Head, Services Division
LCdr	Head, Test Planning and Review Section
LCdr	Head, Shipping and Stowing Branch
LCdr	Services Division
LCdr	Test Planning and Review Section
LCdr	Test Planning and Review Section
LCdr	Head, Operation Section V
Lt	Head, Records and Reports Branch
Lt	Head, IBM Branch
Lt	Head, Operation Section II
Lt	Head, Operation Section VIII
Lt	Head, Operation Section I
Lt	Head, Technical Library, Custodian Registered Publications
Lt	Head, Operation Section VI
Ltjg	Head, Operation Section VII
Ltjg	Operations Section I
Ltjg	Head, Operation Section III
Ltjg	Operation Section V

Professional Allowance (Civilians) and Assignments

These employees are Civil Service personnel who are specialists (Research Psychologists) in the field of educational testing and measuring.

GS-13	Technical Director, Head Professional Division
GS-12	Head, Control Branch
GS-12	Head, Operations Branch

GS-12	Head, Research and Evaluation Branch
GS-11	Operations Section I
GS-11	Operations Section II
GS-11	Operations Section III
GS-11	Operations Section IV and V
GS-11	Operations Section VI and VII
GS-11	Operations Section VIII
GS-9	Research and Evaluation Branch
GS-9	Research and Evaluation Branch
GS-9	Head, Statistical Section

Enlisted Allowance and Assignments

No.	Rate	No.	Rate	No.	Rate	No.	Rate
1	BMC	1	PN1	1	PHC	1	SWC
2	QMC	1	PN2	23	SN	1	UTC
1	RDC	2	MAC	1	MMC	1	ADC
2	SOC	2	MA1	2	ENC	1	ATC
2	TMC	2	MA2	1	MRC	1	ALC
1	GMC	2	SKC	1	BTC	1	AOC
1	FCC	1	SK1	1	EMC	1	ACC
1	FTC	1	SK2	1	ICC	1	ABC
1	MNC	1	DKC	1	MEC	1	AEC
1	ETC	1	DK2	2	FPC	1	AMC
1	IMC	2	GSC	2	DCC	1	PRC
1	OMC	1	SRC	1	PMC	1	AGC
1	TEC	1	JOC	1	MLC	1	TDC
1	RMC	1	PIC	1	SVC	1	AKC
3	YNC	1	LIC	1	CEC	1	AFC
8	YN1	1	DMC	1	CDC	1	HMC
11	YN2	1	DM1	1	CMC	2	DTC
13	YN3	1	DM2	1	BUC	1	SDC
2	PNC	1	MUC				

The enlisted allowance is augmented by personnel assigned for temporary duty in connection with the preparation of specific examinations as required to implement the production schedules.

CHAPTER V

PROCEDURES ESTABLISHED BY THE CENTER

Instructions for the Administration of Examinations. The administration of a service-wide testing program requires a set of instructions which will effectively standardize the procedure to be followed by personnel involved. Such instructions are promulgated to all commanding officers and others interested in the conduct of service-wide examinations for advancement in rating.[1] This manual is directed to commanding officers, examining boards and convening authorities. In addition to specific directions and clearly defined responsibilities a check list and general instructions are included to insure proper standardized performance of duties throughout the service.

Before discussing the various sections of the Manual of Instructions it is essential to emphasize the nature of service-wide examinations. On a designated day at a specified time all eligible enlisted personnel throughout the world are examined by various local examining boards. Personnel striving for a particular rate within a particular

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[1] U.S. Department of the Navy. Bureau of Naval Personnel. Instructions for Administration of Examinations for Advancement to Pay Grades E-4, E-5, E-6, and E-7. NavPers 15828 (Rev). Washington: October 1950, 27 pp.

rating take the same test whether they are overseas or in the United States. Thus it is especially important that a standardized set of instructions be rigidly followed by the numerous examining boards set up throughout the world.

The general instructions contained in the manual for the administration of examinations cover the subjects of security, accountability and forwarding of examinations. Strict accountability of all examinations is enjoined. Prior to the time scheduled for conducting examinations the examinations are not to be opened to anyone. Reproduction of any part of an examination is prohibited except by the Naval Examining Center. This latter provision is an attempt to insure that no questions will find their way into circulation. As will be shown later some test items are used in subsequent examinations when it is determined by the Center that it is desirable.

When personnel who are eligible to compete for advancement are transferred it is the responsibility of the commanding officer to notify the senior member of the examining board concerned. Thus the appropriate examinations must be forwarded to the new commanding officer who is responsible for their delivery to the new examining board. It can be seen, therefore, that no penalty is attached to an individual who may be in the process of moving to a new duty assignment.

The next section deals with instructions to commanding officers. Here the subjects covered are the nomination of candidates and the letter of transmittal for forwarding examination returns to the Center. NavPers Form 624 must be prepared by commanding officers in accordance with current instructions. To aid in the preparation of this form a sample is included in the instructions. A copy of Form 624 is shown on page 67. It should be noted that items marked # are to be filled in by the commanding officer. Items marked ## are the responsibility of the local examining board. To aid in the standardization of letters of transmittal a form letter is included in the manual. Here again is evidence of strict accountability of examinations by name, rate and serial number. It is to be noted that this letter of transmittal notifies the Center that all used and unused examinations listed have been destroyed by burning. The forms 624 and answer sheets are forwarded to the Center with this letter. Thus the work of the Center in checking, sorting and marking of examination returns is materially aided.

The instructions for examining boards are divided into three sections which cover their responsibilities prior to, during and after the administration of the examinations. Prior to the date of the examination the board will receive a shipment of examinations which must be carefully checked and a receipt for same acknowledged. Senior members of the

REPORT OF EXAMINATION FOR ADVANCEMENT OR CHANGE IN RATE OR RATING

NAVPERS-624 (REV. 1–50) — REPORT PERS—6–39

NAME (*Last*) (*First*) (*Middle*)	SERVICE NO.	RATE	☐ USN ☐ USNR, CLASS
#	#	#	#

NAME OF SHIP OR STATION	NAVY JOB CODE	EXAMINATION FOR
#	#	#

FOLLOWING SERVICE COMPUTED AS OF: (*See instruction No. 3*)	ACTIVE NAVAL SERVICE		DATE OF CURRENT ENLISTMENT/OR TOUR OF ACTIVE DUTY	RATE ENLISTED/OR CALLED TO ACTIVE DUTY AS
	YEARS	MONTHS		
#			#	#
TOTAL NAVAL SERVICE	#	#		
SERVICE IN PRESENT PAY GRADE	#	#		
SEA SERVICE (*when required*)	#	#		

☒ FIRST ENLISTMENT OR FIRST TOUR OF ACTIVE DUTY ☒ REENLISTED UNDER CONTINUOUS SERVICE OR CALLED TO ACTIVE DUTY UNDER SIMILAR CONDITIONS ☒ REENLISTED UNDER BROKEN SERVICE OR CALLED TO ACTIVE DUTY UNDER SIMILAR CONDITIONS

CONDUCT AND PROFICIENCY IN RATE MARKS FOR PERIOD DURING WHICH MARKS AFFECT ELIGIBILITY:

QUARTER ENDING #										AVERAGE
CONDUCT #										
PROFICIENCY IN RATE #										

PRACTICAL FACTORS COMPLETED FOR

☒ MILITARY REQUIREMENTS ☒ RATE FOR WHICH TO BE EXAMINED ☒ TECHNICAL SPECIALTY (*If applicable*)

TRAINING COURSE(S) COMPLETED (*Show mark and date completed*)

#

SERVICE SCHOOL(S) COMPLETED (*Name of school, mark attained, date completed*)

#

Candidate fulfills currently prescribed requirements for advancement (or change) to the rate indicated or to compete by examination for such advancement. Entries, including factors B, C, and D of Multiple Computation below, are derived from service record and certified correct.

_____ U. S. N.

EXAMINATION MARKS (*See Instruction No. 6*)

PROFESSIONAL SUBJECTS FOR INDIVIDUAL RATE NAVPERS-18053 CODE:

SUBJECT	.201	.202	.203	.204	.205	.206	.207	.208	.209	.210	.211	.212	.213	.214	.215	.216	.217	.218	.219	220
MARK		GCT		#		ARI		#			MA		#			CA		#		
SUBJECT	.221	.222	.223	.224	.225	.226	.227	.228	.229	.230	.231	.232	.233	.234	.235	.236	.237	.238	AVERAGE	
MARK																				

MILITARY REQUIREMENTS FOR ALL ENLISTED PERSONNEL IN THE NAVY NAVPERS-18068

SUBJECT	.201	.202	.203	.204	.205	.206	.207	.208	.209	.210	.211	.212	.213	.214	.215	.216	.217	.218	AVERAGE
MARK																			

MULTIPLE COMPUTATION (*See instruction No. 7*)

FACTORS	AS OF: # (*Date*)			MAXIMUM
A. EXAMINATION-PROFESSIONAL SUBJECTS	MARK (3 DECIMALS)	X20.00		80.00
B. TOTAL NAVAL SERVICE	YEARS (2 DECIMALS) #	X 1.00	#	20.00
C. SERVICE PRESENT PAY GRADE	YEARS (2 DECIMALS) #	X 1.00	#	5.00
D. AWARDS				5.00
	FINAL MULTIPLE			110.00

OPERATIONAL TESTS

TEST AS REQUIRED	MARK # #
FLASHING LIGHT TRANSMISSION	
FLASHING LIGHT RECEIVING	
RADIO CODE TRANSMISSION	
RADIO CODE RECEIVING	
SEMAPHORE TRANSMISSION	
SEMAPHORE RECEIVING	
TYPEWRITING	
STENOGRAPHY	

EXAMINATION DATE # — NAME OF ACTIVITY WHEREIN BOARD IS LOCATED (*Main Board, if applicable*) #

The candidate was examined in accordance with the requirements of the Bureau of Naval Personnel Manual: The Manual of Qualifications for Advancement in Rating, and existing instructions. We consider the candidate _____ fully qualified and do _____ recommend the candidate for the rate of _____. Examination marks and multiple shown above are certified correct.

# # (*Senior Member*) U. S. N.	# # (*Member*) U. S. N.	# # (*Member*) U. S. N.

SUPERVISORY BOARD (*if applicable*) LOCATION:

_____ U. S. N. _____ U. S. N. _____ U. S. N.

16—61025-1

boards are enjoined to insure that personnel who will participate in the administration of examinations thoroughly understand their duties and responsibilities. The boards must see that all materials such as paper, special graphite pencils, answer sheets, etc. are available. A thorough check of Form 624 is made by the board and steps taken to correct any errors found. Arrangements must also be made for a proper space with good lighting and ventilation. Further instructions to the boards cover typical cases wherein a candidate appears for whom there is no examination. The board is directed to take appropriate steps to insure that such candidates are examined. During the administration of the examinations and just prior to the beginning of the test all candidates are given specific instructions by the board. These instructions relate to the conduct of the candidates and the manner of taking the test. A definite warning is given to the effect that cheating will result in disqualification of candidates or candidate concerned. During the actual examination the proctors are directed to insure that standardized procedures are implemented with respect to operational tests for certain ratings. After the examinations are completed the Examining Board is responsible for the prompt forwarding of results to the Naval Examining Center. It is mandatory for the board to insure that all necessary papers pertaining to each candidate are assembled

and complete.

Final instructions apply to convening authorities. Convening authorities submit requests to the Center for desired examinations. Upon receiving a shipment of examinations it is the responsibility of convening authorities to maintain accountability control. Examinations are forwarded to all examining boards under their jurisdiction. Convening authorities must appoint examining boards at an early enough date to permit the boards to function prior to the specified examination date.

Testing Techniques and Test Construction. As indicated earlier the operations section is the heart of the test construction program. The item writers are Chief Petty Officers who are responsible for the initial formation of items which will eventually be used in the examinations. Upon reporting to the Center for duty each new item writer is given a course of instruction designed to assist him in test construction. It is assumed that he has had little or no experience in this field. The instruction includes a refresher course in English as well as how to develop and prepare test outlines or plans and multiple choice items.

In the preparation of the test outline each item writer is required to study the appropriate section of the Qualification Manual for Advancement in Rating to obtain an over-all picture of the subjects that are to appear in his

particular examination. Upon completion of this initial study the item writer draws from the technical library of the Center the publications which appear on an approved bibliography for his particular rating. The bibliography used in the construction of examinations is approved by the Bureau of Naval Personnel, Test and Research Section. The publications included are those which are disseminated to all Naval activities. Thus all personnel in the Navy have access to the printed material pertaining to the various ratings.

The next step is the development of the test outline. A test outline shows the number of items to be used in sampling each of the several areas of subject matter to be included in the test. The subject matter areas for each examination were shown under the discussion of the Qualifications Manual on page 13. In the preparation of the test outline, the item writer estimates the relative weight to be assigned to each subject based on his own experience in the rating, and the availability and dissemination of reference material. The test outline is prepared by the item writer under the close supervision of his section head and a civilian test technician. Upon completion, the outline is reviewed by a member of the Control Branch in an effort to avoid the possibility of over sampling or under sampling in each of the subject matter areas.

The test plan takes shape when the test outline has been completed. It shows the proportion or number of items to be devoted to each classification of subject matter. In general the test plan is an elaboration of the test outline and contains a detailed breakdown of the major categories. The test technicians and item writers collaborate in the preparation of the test plan. This procedure is followed throughout the entire preparation of examinations in order to give curricular validity to the items.

In accordance with the test plan, the item writer begins to prepare test items. The items are of the multiple choice type. They permit the use of standard machine-scorable answer sheets. The multiple choice item is flexible and can be adapted to almost every testing requirement.

The principles of sound test construction are applied throughout the preparation of test items.[2] Every effort is made to insure that the question or statement introducing an item is free of ambiguity, is written in good English, and is easily understood. The working language of the job is used. Special attention is also given to the alternatives of which there are four for each item. Perhaps one of the most difficult phases of item construction is the development of

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[2]Dorothy C. Adkins, Construction and Analysis of Achievement Tests (Washington: U. S. Government Printing Office, 1947), pp. 55-64.

plausible, related distractors. An alternative or distractor which is so unrelated to the question that it stands out like a "sore thumb" will reduce the effectiveness of the item considerably. Each item must be independent of all other items and must deal with useful aspects of the job. A concerted effort is made to construct test items with good characteristics. However, it is done within the framework of the present set of qualifications.

Shipping Examinations. Requests for examinations are submitted to the Center by convening authorities. Upon receipt of these requests the Center prepares IBM inventory cards which show the numbers and types of examinations for each convening authority. These cards are filed in a Requested Inventory File for future reference. Shipping lists are prepared in accordance with each request. Letters of transmittal, shipping tags and envelopes are prepared and matched with the shipping lists and original request. Examinations for each shipment are assembled, serial numbers are checked and finally packages are made ready for mailing.

Receipt of Examination Results and Scoring. Shortly after the examinations have been conducted the Center will receive the standard letters of transmittal with envelopes containing the forms 624 and examination results. The Center punches IBM rating advancement cards from the

information contained in the letters of transmittal. The rating advancement cards are matched against the requested inventory cards in order to uncover any discrepancies between the original request for examinations and results returned. The envelopes are opened to check and process the answer sheets and forms 624. Answer sheets are scanned at this stage to insure that only one alternative for each item has been checked. If an electrographic pencil was not used the answers will be hand scored. Next, the military and professional examinations are scored by IBM machine. Critical scores (2.33 to 2.66) are rescored on different machines. A score of 2.50 is considered passing. Scores are entered on the form 624 and the rating advancement cards. The forms 624 are filed. A master list is prepared which contains final multiple by rate and pay grade. This master list is used to determine who is to be advanced.

The Bureau of Naval Personnel controls the assignment of quotas for advancement to each rate and rating. In the case of advancement to Chief Petty Officer, the Center forwards completed forms 624 and master lists of final multiples to the Bureau. The Bureau then promulgates directives concerning advancement for these personnel. Quotas for advancement to pay grades E-4, E-5, and E-6 are sent to the Center for action. In this case advancement rating cards are sorted in three groups: (1) those selected for advancement to fill

quotas, (2) those selected as passed but will not be advanced unless additional quotas are received, and (3) those selected as having failed. Listings of personnel to be advanced are forwarded to the activities concerned with copies to the convening authority and to the Bureau. Commanding Officers of individuals on this list are authorized to effect advancement. Listings of personnel who have passed but may not be advanced due to the absence of quotas and listings of personnel who have failed are forwarded to the convening authorities concerned. The rating advancement cards are then filed by activity and convening authority keeping the cards separated into the three groups mentioned above.

The machine records section is not completed with its phase of recording until it has prepared information for analysis. Item analysis cards are punched from the answer sheets. The high and low cards for each rate and pay grade are sorted on each of the examination items. A count is recorded of high and low choices on each of the four alternatives of each item. These data are entered on an item analysis form which is sent to the Research and Evaluation Branch. The item analysis cards are filed by rate and pay grade with high and low kept separate.

The foregoing explanation of the functions of receiving, scoring and reporting examination results is necessarily brief but will serve to indicate the scope of the work

involved. IBM machines and punch cards are used in this process wherever they can effeciently and effectively eliminate hand operations. Emphasis is placed upon speed as well as accuracy in this phase of the Center's operation. In addition to the necessity of promulgating results of examinations as expeditiously as possible it is essential that analysis techniques be applied to one series of examinations before the next series is constructed in its final form.

Analysis Techniques. Statistical analysis is a function of major importance to the operation of the Naval Examining Center. After all, a great deal of information is gathered which can materially assist in raising the performance of the Center, improving training standards throughout the Navy and aid in the advancement of the best qualified personnel.

The purely mathematical part of all statistical analysis is performed by personnel assigned to the Research and Evaluation Branch. The accumulated data are forwarded to the Control Branch for evaluation and interpretation. Upon completion of interpretation of the data, specific recommendations are prepared by the Control Branch and forwarded to the Operations Branch for their guidance in the elimination, re-working, up-grading, or down-grading of test items.

An item analysis form similar to the following is used to expedite recording of data:

Item Analysis Report Form

Rate_____ Rating_____ Date of Examination_____

Analyzed by_____ Date_____ Reviewed by_____ Date_____

N - _____

Item	Choice	1	2	3	4	Omit	
76	H						r -
	L						P -
77	H						r -
	L						P -

The number of individuals who took the examination is shown on the above form as "N." Samplings for item analysis are made in accordance with the following table:

N	High	Low
over 400	100 of high 25%	100 of low 25%
200-399	50 of high 25%	50 of low 25%
100-199	25 of high 25%	25 of low 25%
70-99	high 25	low 25
50-69	high 20	low 20
35-49	high 15	low 15
25-34	high 10	low 10
1-24	all (no H or L)	

All data on the frequency of selection of alternatives are shown on the item analysis report form under the respective columns. From the total number who selected the correct

alternative the percentage of the total of high and low sample the item (P) is computed. By inspection the alternatives are reviewed in the light of the foregoing data and recommendations concerning changes to an item are made.

Following the machine scoring of examinations and the processing of forms 624 the scores of each test are posted in rank order on an ungrouped frequency distribution chart. A standard form has been developed to expedite the posting of scores in accordance with the intervals employed in the conversion of raw scores to the 0.00 to 4.00 scale. Common measures of central tendency and variability are computed for each examination and appropriate notations made on the frequency distribution Chart. These measures include the mean, median, and standard deviation which are computed according to standard formulae. Direct comparison with data from preceding and subsequent examinations in the same rating and pay grade as well as other statistical studies can then be made.

A Statistical Analysis Data Chart shown on page 78 is made out for the Aviation Electronic Technician's (AT) examinations given in July 1950. Here is an illustration of the methods used in analyzing the results of the three examinations given for pay grades E-4, E-5, and E-6 in the AT rating.

SECTION ANALYSIS FOR THE AT EXAMINATION GIVEN IN JULY ,1950 N TOTAL= 1,650

SUBJECT	E-7 NO. ITEMS	E-7 P-AV.	E-6 NO. ITEMS	E-6 P-AV.	E-5 NO. ITEMS	E-5 P-AV.	E-4 NO. ITEMS	E-4 P-AV.
.201 TOOLS			10	56.30	13	75.46	15	58.20
.202 TEST EQUIPMENT			14	68.14	12	57.08	10	60.60
.203 DRAWINGS			7	67.14	10	52.20	13	63.15
.204 ELECTRONIC			42	58.12	39	64.31	40	60.95
.205 ELECTRICITY			27	47.19	26	54.42	24	51.71
.206 MATHEMATIC			15	54.67	14	46.07	19	52.16
.207 SAFETY PRECAUTION			8	78.25	8	82.11	9	74.22
.208 SUPPLIES			7	52.29	7	68.71	6	68.67
.209 RECORDS & REPORTS			7	39.71	7	67.71	4	81.75
.210 PUBLICATION			7	57.14	6	72.80	5	72.20
.211 ORGANIZATION			6	46.00	5	67.00	5	75.00

CPO EXAM

MEDIAN=
MEAN =
S.D. =
N=
-SAMPLING-
OF H. %
OF L. %

FIRST CLASS EXAM (40 50 60 70 80)

DESIRED P-AV. 62.00
ACTUAL P-AV. 56.44

MEDIAN= 2.233
MEAN = 2.255
S.D. = .312
N= 118
-SAMPLING-
25 OF H. 25 %
25 OF L. 25 %

SECOND CLASS EXAM (40 50 60 70 80)

ACTUAL P-AV. 62.32
DESIRED P-AV. 62.00

MEDIAN= 2.487
MEAN = 2.470
S.D. = .393
N= 525
-SAMPLING-
100 OF H. 25 %
100 OF L. 25 %

THIRD CLASS EXAM (40 50 60 70 80)

DESIRED P-AV. 62.00
ACTUAL P-AV. 60.75

MEDIAN= 2.453
MEAN = 2.429
S.D. = .356
N=1007
-SAMPLING-
100 OF H. 25 %
100 OF L. 25 %

"P" GRAPHS OF INDIVIDUAL ITEMS, BY SECTIONS

NO. OF ITEMS → .201 .202 .203 .204 .205 .206 .207 .208 .209 .210 .211

E-7 "P"

E-6 "P" *12

E-5 "P"

E-4 "P"

The top left hand section entitled "Subject" lists the subject matter by sections as it appears on the examination. This also corresponds to the sections outlined in the Qualification Manual for Advancement in Rating. The sections for each examination contain columns entitled "No. Items." Under these columns are listed the actual number of items appearing on the examination which pertain to each specific subject. The next column is labeled "P-Av" and contains the actual P-average taken from the sampling indicated for that particular pay grade. In this chart "P-Av" refers to the over-all Navy percentage passing the entire examination. The "actual P-Av" is indicated on the chart by a solid black vertical line. The "desired P-Av" is shown as 62 but it is understood that in future examinations it will be changed to 50. The horizontal lines in red and black indicate the negative and positive magnitude respectively of the deviations from the "desired P-Av."

The mean, median and standard deviation are those obtained from the actual raw scores. The "N" indicates the total number who took the examination. For the data shown on the chart the actual number for each high and low sample is indicated.

At the bottom of the chart is shown a section called "P Graphs of Individual Items, by Sections." The number of items correspond to the actual items in the examination for

each subject area. The per cent of the high and low sample who selected the correct response for each item is shown. Thus it can be seen that items marked red are not acceptable for re-use and must be analyzed, re-worked or discarded. The items marked black may be acceptable for re-use and become part of the item file pending further analysis and approval by test technicians.

Each test is a means of making a better test. The evaluation of results is a continuous program that must play an important role in test construction. It is significant to point out here that each examination prepared by the Center for each rating and pay grade is essentially different from the preceding one. In other words, at the present stage of the Center's operation, new items must be developed for each new examination. However an exception to this is followed to some degree in that roughly 25 per cent of the items from former examinations may be re-used. Item writers are responsible for insuring that all items, old or new, are current and applicable.

There are many methods for improving the reliability and validity of tests. At the present time the Center has not conducted any reliability or validity studies. The procedures applied in item analysis, however, do tend to increase the internal consistency or reliability of the tests and it is anticipated that reliability coefficients using

the "split-half" method will be computed in the near future. Until an adequate criterion of on-the-job performance can be established it will be difficult for the Center to conduct any validity analysis.

The results of the examinations given in December 1949 for advancement to Chief Petty Officer are particularly significant.[3] A total of 14,794 candidates took this examination. Some of the tabulated data are itemized as follows:

14,794 total number who took examination
2,178 14.7% passed all parts of examination
4,755 32.1% passed professional examination
5,393 36.5% passed military requirements
2,795 total number who took operational tests required in 12 ratings
1,674 59.9% passed operational tests

Some candidates passed the professional examination and failed the military requirements examination. Others reversed this and still others passed both written tests but failed the operational tests. It is important to note that only 14.7% were found eligible for advancement. This was a disappointment to the Naval Examining Center as well as to those participating in the examinations. However, it must be pointed out that this particular set of examinations was prepared in the Bureau of Naval Personnel and not by the Examining Center. It is hoped that these discouraging

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[3] "Results of the December 1949 Examinations for Advancement to Chief Petty Officer," Naval Training Bulletin, NavPers 14995. November 1950, pp. 6-8.

results will not be repeated in future examinations.

Some explanations are indicated for the results tabulated above. The difficulty level of the military requirements examination may have been too high. The military requirements set forth in the Qualifications Manual needs revision as indicated earlier in order to establish the dividing lines between rates. There was a wide range of differences among the several rating groups which lead to the belief that the test had some of the aspects of an intelligence examination. Too many of the items tested pure rote memory rather than the ability to solve a problem. However, it appears that many of the candidates did not prepare themselves by studying available references. This was particularly indicated in the results of ratings which are highly technical and tend to be removed somewhat from deck duties aboard ship. Here again is a point that should be explored. Perhaps the military requirements should be revised to provide differences for specific ratings as well as rates.

The percentage of failures in the professional examinations ranged from 0 per cent to 100 per cent in various ratings. In view of the fact that the professional examinations were based on subjects outlined in the Qualifications Manual some conclusions may be drawn from the results of this test. The examinations showed inconsistency in difficulty levels indicating either that there may be variations in

training or that qualifications are not clearly defined in the Manual. The form and content of the Manual does not provide clarity or specificity. Therefore subjective interpretation of the Manual is necessary by personnel who plan training programs as well as personnel at the Center who construct the advancement examinations.

CHAPTER VI

EVALUATION OF THE PERFORMANCE OF THE CENTER

Impact on the Navy. The Naval Examining Center in the short period of its existence has made a significant impact on the Navy. It is probably here to stay as an integral part of the Naval establishment. Its most immediate impact has been to correct the inadequacies of the former area-wide system of advancement examinations by providing standardized measuring instruments to be used on a service-wide competitive basis. A staff of well qualified experts in the highly specialized field of testing have been assembled into one unique organization. The procedures established and the techniques used in preparing, distributing, scoring and reporting on results of examinations are centralized and standardized. The operating forces have been relieved of the responsibility and work involved in the preparation of examinations. This resulted in the saving of considerable man hours which can now be devoted to operations and training.

Another result of the Center's work has been the reduction of the number of men qualifying for advancement. This is evident by the results described in the preceding chapter. Until training for advancement becomes more standard this lack of qualified personnel will continue. But

it must also be recognized that the Qualification Manual, as presently written, is inadequate as a basis for planning examinations or for guiding men in preparing for advancement or in guiding shipboard training programs.

Promulgation of information concerning areas of weakness revealed by examinations is of utmost importance. Fleet and shore based commanders are responsible for the vigorous prosecution of training programs and for their continuous improvement. The Center, recognizing its responsibility in this regard, furnishes detailed information on the results of each series of examinations. Analyses show specific weakness in subject matter areas in each rating on a Navy-wide basis. In compiling these data no record is made of names or commands to which attached. Extensions of this work to provide detail studies of examination results for individual convening authorities should be explored. It would be necessary to segregate all answer sheets by rate and rating and by convening authority but such procedures are feasible in terms of machine capacities. However, at the present time there are limitations due to personnel allowances which affect the manual operations involved.

Organizational Aspects. It appears that the decision to establish a centralized testing program for the Navy was sound. Davis[1] tells us that centralized control varies

[1]Ralph Currier Davis, Industrial Organization and Management (New York, London: Harper and Brothers, Publishers, 1940).

inversely with: (1) the size and complexity of an organization, and (2) the geographic dispersion of its activities. He further states that centralized control varies directly with (1) the degree of standardization desired and (2) the speed, capacity and accuracy of communications. These are basic principles which affect the degree of centralized control most effective in any organization. The size of the Navy is staggering when compared with its organization of a generation ago. The dispersion of Navy ships and stations throughout the world has no parallel except with other armed services. But along with this immense growth has been the efficient development of effective, fast communications and transportation service. It is especially significant that the Navy rating structure requires the highest degree of standardization possible to insure well trained and well qualified personnel in all skill levels. To accomplish this the Naval Examining Center has been established and given the mission of preparing standardized measuring instruments to be used as effective tools for selecting the right personnel for advancement. Another reason for the Center is to give Naval personnel assurance they are all being treated fairly according to the same standard. This high degree of centralization applied to the Navy's testing program has already made a significant impact on the Navy. Needless to say it must continue to improve its procedures in the future

with the ultimate aim in mind of accomplishing its objectives.

It is important to emphasize again the technical nature of the Center's activity and to recognize that its organizational structure must be designed to accomplish its mission effectively and efficiently. In growing to its present position an effort has been made to establish an organization with clearly defined channels for controlling the efforts of the personnel. It considers its objectives in providing for the necessary functions and fixes responsibility and authority in defining the relationship of the various tasks.

The following basic principles of organization, as outlined by Terry,[2] appear to be operating:

1. Consideration of the objectives of the enterprise.
2. Utilization of functions as essential components.
3. Application of simplicity.
4. Determination of clearly defined channels for controlling the efforts of personnel.
5. Establishment of definite and fixed respnsibility.
6. Consideration of the human element.
7. Establishment of adequate systems.
8. Provision of effective leadership.

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[2] George R. Terry, Ph.D., Office Management and Control (Chicago, Illinois: Richard D. Irwin, Inc., 1949), p. 69.

The Center has gained valuable experience in development of its present organization. The fact that it has had three distinct phases in this development is significant. It has had and is still having its "growing pains." The present organization is designed to eliminate obvious faults which existed in the previous organizations. It is felt that great improvements have been made. It remains for time to test the soundness of the most recent change. Recognizing the unprecedented nature of the organization it is important to evaluate the Center in the light of its objectives rather than to compare it with other Naval activities which have been successful. Further, it must be recognized that the Center is a comparatively new approach to the Navy's concept of a centralized testing program. In spite of its shortcomings it has done a remarkable job in only two years. There is no doubt but that the personnel attached to the Center are fully aware of their responsibilities and will exert every effort to continuously improve its organization.

Analysis Techniques. In accordance with accepted statistical procedures the analysis of results of examinations in each rate and rating are based upon a representative sampling of all scores in the rate and rating, selected from a frequency distribution of the scores. The use of these data in item analysis is sound and an effort is constantly being made to improve test items. In the work of

test construction the Center follows basic principles to insure a finished product which is far better than was ever accomplished under the former decentralized program. Close cooperation between test technicians and subject matter specialists is very good.[3] However, the author feels that more emphasis should be placed on developing more objective items. Multiple choice items are not necessarily the only type of measuring instrument which can do the job. Other types should be tried which may fit the operational situation better. The important considerations are: can the individual apply the principles and knowledge he must possess in a complex situation; and, do the items test his knowledge of those principles? The person being examined should be put in an actual situation as close to on-the-job performance as possible. This can be done with well designed, well constructed, and well thought out test items. Objectivity in item construction does tend to increase reliability.[4] But the Center must guard against building paper and pencil tests which are based upon qualifications that do not reflect the skills and knowledge really required for the particular ratings.

Statistics is a means of handling quantitative data in such a way that it may express comparisons and differences

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[3] Adkins, op. cit., p. 3.

[4] Ibid., p. 2.

between variables. Four basic measurements are needed in statistical studies:[5]

1. Measures of central tendency - mean, median, mode.
2. Measures of variability - standard deviation.
3. Measures of relationship - correlation coefficients.
4. Measures of significance - significant differences at the 1 to 5 per cent levels or significant + or - fluctuations.

Measures of central tendency and variability are calculated by the Center in their statistical studies. But measures of relationship - reliability and validity coefficients - have not yet been done. Herein lies the basic weakness of the Center at the present time. It must develop procedures for checking the reliability and validity of its measuring instruments or the present techniques of examinations for advancement will be repudiated. Face validity gives acceptance to personnel concerned but it is not enough.[6] Too much reliance is placed on the efficacy of tests without adequate proof. Yet tests constructed by competent persons using sound techniques do have a good chance of being more valid than no tests at all or a decentralized testing system.[7] The personnel and facilities are now available to institute effective statistical analyses to justify the Center's

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[5] Ibid., p. 86.
[6] Ibid., p. 2.
[7] Ibid., p. 208.

existence.

Army and Marine Corps Testing Programs. Inquiry into the testing programs followed by the Army and Marine Corps reveals significant comparisons with the Navy's centralized system. The testing program for the Army at the present time is decentralized.[8] It is similar to the area-wide competitive system used by the Navy prior to the establishment of the Naval Examining Center. The Personnel Research Section in the Office of the Adjutant General is similar to the Navy's Research Division in the Bureau of Naval Personnel. Personnel techniques and procedures are developed in the Department of the Army. But the actual tests used to measure achievement in various Army specialists are constructed, distributed and graded by the arms and services concerned. Guidance and consulting service is available in the central office. The top four pay grades are included in competitive "area-wide" examinations. As in the Navy system for advancement, factors other than the test scores are included in the multiple which determines relative standing for Army promotion. Some of these factors are enlisted efficiency report, time in grade, length of service and the company commander's recommendation. Weightings of all

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[8] U. S. Department of the Army, Office of Adjutant General, Chief, Personnel Research and Procurement Branch, letter, AGPP-L, 1 March 1951 addressed to the author.

factors vary in each grade and in each speciality.

The Marine Corps has a central testing unit located at Quantico, Virginia.[9] Its function is quite similar to the Naval Examining Center as can be seen in the following description.

In June 1948 the Testing and Educational Unit was formed at the Marine Corps Schools under the technical and management control of the Commandant of the Marine Corps, Personnel Research Section, and under the military and coordination control of the Commandant, Marine Corps Schools. Its mission covered the preparation, distribution and scoring of technical and general military subjects examinations for all enlisted personnel in the Marine Corps eligible for advancement. During the latter part of 1948 the work of this organization was devoted to the construction of a new Marine Corps Military Occupational Speciality Manual. By 1950 tests were administered to the top five pay grades in general military subjects and to the top three pay grades in 14 of the 44 occupational fields of the Marine Corps classification structure. In 1951 this testing program was extended to the top three pay grades in 37 of the 44 occupational fields.

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[9] Correspondence dated 28 February 1951 received from the Officer in Charge Testing and Educational Unit, Marine Corps Schools, Quantico, Virginia.

It is significant to note that there are no civilian technicians attached to the Marine Corps Testing and Educational Unit. Twelve officers and 19 enlisted personnel are included in the basic organization. Obviously these personnel cannot handle the production of all examinations that must be turned out each year. Approximately 48,000 general military subjects tests and 12,000 technical tests have been administered so far in the 1951 testing period. Prior to each examination period personnel are assigned temporary additional duty to the Unit to assist in the production of test items. This system is in effect to conserve manpower and it appears that it will continue.

It is also significant to note that a Statistical Analysis section is not included in the organization of the Unit. However, all personnel involved in test construction receive some training in testing techniques. After examinations are scored the raw scores are sent to the Enlisted Promotion Branch at Headquarters Marine Corps in Washington for processing.

Compared with the two services described above the Naval Examining Center is farther along in development toward efficient centralization of administration of testing. Perhaps there are factors operating which affect considerations in policy making, but it appears that the other services could gain immeasurably by adopting more of the

features of the Navy's testing program.

Future of the Center. In view of the fact that the Center has assumed a significant place in the Navy it must continue to grow in importance and prestige. It is absolutely necessary that procedures be established to check the reliability and validity of the examinations that are constructed and used. This should be the first order of business before the Center is given any additional tasks. It is anticipated that reliability studies will be instituted in the very near future. But the work of validating examinations is more difficult. A criterion must be determined which is practical and standard throughout the Navy before validity coefficients can be calculated. Examinations cease to be sound measuring instruments when the validity is unknown or so low that the selection of the best men is no better than chance.

In the future the Center must constantly guard against producing examinations which are meaningless. It must develop tests which reflect the skills and knowledge required for competent performance of duty in each rate and rating. Otherwise men who are good examination takers will qualify while better practical men are left behind.

Concerning future tasks which the Center may be able to perform there are many possibilities. Although the word "Examining" is imbedded in the Center's title it doesn't

mean that there are any restrictions to its activity. After all, examinations are made only to be used as a measuring device and the related function of evaluation is an integral necessary part of test construction. With technical personnel and facilities available the Center could eventually extend its mission to include the evaluation of team or unit or individual performance. In this regard the Center should be a party to future job analysis programs established to improve the Qualifications Manual. Also an evaluation of training programs should be conducted to insure a training system for advancement which is related to the skills and knowledge demanded for well trained efficient operational crews.

Any increase in the functions of the Center must necessarily be rationally developed according to the needs of the service. Other functions which might be included in the Center's mission in the future are:

(a) Officer promotion examinations if and when they are again required by the Navy.

(b) Operational tests in lieu of the present practical factor which is required as one qualification for advancement.

(c) Tests for screening applicants for warrant officer or Limited Duty officer ranks.

(d) NROTC and Naval Academy entrance examinations.

(e) Examinations designed especially for reserve personnel in emergency service ratings.

(f) Achievement tests for service schools.

The Educational Testing Service at Princeton has two Navy contracts with the Bureau of Naval Personnel which are concerned with the preparation and administration of examinations. Educational Testing Service prepares the entrance examinations for the U. S. Naval Academy. They also prepare and administer the whole testing program for the preliminary screening of NROTC applicants. This includes scoring and statistical work. It is understood that the Educational Testing Service is closely associated with development of the College Entrance Examination Board examinations. The high prestige value and technical advantage of Educational Testing Service make it worthwhile at the present time for the Navy to continue these contracts. For the Examining Center to assume these additional functions a separate organization within the Center would be required.

CHAPTER VII

RECOMMENDATIONS

In view of the absence of criticism it may be concluded that the examinations produced by the Examining Center are fair. But until an adequate criterion is established, and validity studies as well as reliability studies are conducted, it can not be concluded that the examinations are appropriate tests for advancement.

The Center is capable of handling the load imposed upon it with personnel and facilities provided. Organizational changes have been designed to improve its operation. It is essential that personnel and facilities be allocated to accomplish necessary statistical analysis.

It follows that the Center is not only firmly established but well worth continuing in operation as an integral part of the Naval Establishment.

In the light of the foregoing presentation of the activity of the Naval Examining Center and its impact upon the Navy specific recommendations are in order which the author believes are important to the continued operation of the Center. First of all, in view of the fact that too much reliance is placed upon the efficacy of examinations without adequate proof, it is mandatory that reliability and

validity studies be effected at the earliest possible date. To obtain reliability coefficients of practical value the split-half method appears feasible. To obtain validity coefficients of each examination with a criterion is a more difficult task. The best possible criterion to determine is on-the-job performance. It should be possible to standardize a rating system which could be implemented with a relatively short time. However, in making validity studies an effort should be made to check the personnel who fail to advance in rating as well as those who are selected under the present testing program. Only in this way can it be known whether or not the best qualified personnel are selected.

Another recommendation is made which is closely related to the quality of examinations produced by the Center. It is important that the present Qualifications Manual be revised using job analysis techniques. The Manual must reflect the skills and knowledge definitely required for each rate and rating. Moreover, it is essential that the levels of skills be sharply defined rather than left up to the subjective interpretation of test constructors. Training programs could then be applied which more nearly reflect on-the-job performance required for each rate and rating as well as be in line with the objective type tests used for selection.

The author feels strongly that the Officer in Charge or Assistant Officer in Charge of the Center or both should

be graduates of the Personnel Administration and Training course. Special emphasis for officers scheduled for these billets should be placed on test and measurement techniques. This recommendation is made because of the specialized technical nature of the operations of the Center. It is believed that the guidance and direction of the Center's activities would be strengthened immeasurably. The policy of having civilian technicians attached to the Center is sound. A group of trained civilian personnel who are not subject to routine change of duty adds permanence to the organization. This is not found at the Marine Corps Testing Unit which has no allowance of civil service personnel. However, it is mandatory that the civilian personnel employed at the Center be constantly improving technical procedures by keeping abreast of the latest developments in the highly technical field of tests and measurements.

It is further recommended that the Center stabilize its organization to insure effective and efficient operation. The fact that it has undergone three major phases in its organizational structure, each of which represented some improvement, means that it has grown in stature. But continuous changes can operate to the detriment of the overall mission. It is now time, after this "shakedown," to stabilize and standardize the organization. But stability does not mean inflexibility. The organization structure

should be adapted to the peculiar needs of the activity and fit the situation. The present organization appears to be the answer. It will be necessary to give it a try and be on the lookout for violations of the principles of good organization.

A final recommendation involves an increase in the mission of the Center. It is believed that the Center is here to stay. To justify its existence it must first accomplish its present mission fully and effectively. When that has been done, to the satisfaction of the Bureau of Naval Personnel, the additional tasks the Center should perform can be considered. New tasks should be added in a progressive or cumulative sequential relationship and be developed rationally according to the needs of the Naval service.

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